

# APPLIED MICROBIOLOGY

VOLUME 23

BALTIMORE, MD. 21202

1972

# APPLIED MICROBIOLOGY

## EDITORIAL BOARD

Marvin P. Bryant, *Editor-in-Chief* (1976)  
*University of Illinois, Urbana*

Albert Balows, *Editor* (1975)  
*Center for Disease Control,  
Atlanta, Ga.*

Ralph N. Costilow, *Editor* (1973)  
*Michigan State University, East Lansing*

R. H. Deibel, *Editor* (1976)  
*University of Wisconsin, Madison*

Nathalie J. Schmidt, *Editor* (1975)  
*California State Department of  
Public Health, Berkeley*

R. F. Acker (1972)  
Libero Ajello (1973)  
Milton J. Allison (1974)  
A. W. Anderson (1972)  
Francis F. Busta (1972)  
Alex Ciegler (1974)  
Rita R. Colwell (1974)  
Marjorie A. Darken (1973)  
A. L. Demain (1974)  
Walter R. Dowdle (1973)  
John C. Feeley (1974)  
James D. Fenters (1973)  
William W. Ferguson (1974)  
Maxwell Finland (1972)  
Anthony F. Gaudy, Jr. (1973)  
S. E. Gilliland (1974)  
T. C. Grubb (1972)  
Richard S. Hanson (1972)  
Paul A. Hartman (1974)  
Melvin T. Hatch (1972)  
Clifford W. Hesseltine (1974)  
John J. Iandolo (1974)

Henry D. Isenberg (1974)  
Holger W. Jannasch (1972)  
S. S. Kalter (1972)  
Alfred G. Karlson (1972)  
Leo Kaufman (1972)  
Lloyd L. Kempe (1973)  
George E. Kenny (1973)  
William M. M. Kirby (1972)  
Robert E. Kissling (1972)  
Morton Klein (1972)  
Hubert Lechevalier (1973)  
Joseph Lein (1972)  
John Liston (1974)  
Warren Litsky (1972)  
Robert Mah (1974)  
Joseph L. Melnick (1973)  
William I. Metzger (1974)  
Thomas L. Miller (1973)  
C. F. Niven, Jr. (1973)  
David Paretsky (1973)  
D. Perlman (1974)  
David Pramer (1974)

Carl P. Schaffner (1972)  
E. L. Schmidt (1974)  
Oldrich K. Sebek (1974)  
Warren S. Silver (1973)  
Louis D. Smith (1972)  
Peter B. Smith (1973)  
S. S. Socransky (1972)  
Mortimer P. Starr (1972)  
Christian Stoll (1973)  
Guenther Stotzky (1974)  
M. J. Thirumalachar (1973)  
Marvin Turck (1974)  
Hamao Umezawa (1973)  
D. I. C. Wang (1972)  
George H. Warren (1972)  
Sydney J. Webb (1972)  
Eugene D. Weinberg (1972)  
R. P. Williams (1972)  
Benjamin J. Wilson (1972)  
G. N. Wogan (1974)  
Alan G. Wolin (1974)

Robert A. Day, *Managing Editor*, 1913 I St., N.W., Washington, D.C. 20006

## EX OFFICIO

Morris F. Shaffer, *President* (1971-1972)

Donald E. Shay, *Secretary*

R. G. E. Murray, *Vice-President* (1971-1972)

T. J. Carski, *Treasurer*

*Applied Microbiology*, a publication of the American Society for Microbiology, 1913 I St., N.W., Washington, D.C. 20006, is devoted to the advancement and dissemination of applied knowledge concerning microorganisms. *Applied Microbiology* is published monthly, two volumes per year. The subscription price is \$40 (foreign, \$41) per year. Single copies are \$4.00 (foreign, \$4.25). Members of the American Society for Microbiology may receive *Applied Microbiology* as part of their dues. Correspondence relating to reprints, defective copies, availability of back issues, and lost or late proofs should be directed to the ASM Publications Office, 1913 I St., N.W., Washington, D.C. 20006. Correspondence from ASM members relating to membership

dues, member subscriptions, changes of address, incorrect address, incorrect journals, etc., should be directed to the Executive Secretary, American Society for Microbiology, 1913 I St., N.W., Washington, D.C. 20006. Nonmembers of the Society should write to The Williams & Wilkins Co., 428 E. Preston St., Baltimore, Md. 21202, regarding institution of nonmember subscriptions and nonreceipt of journals. Published monthly by the ASM at 428 E. Preston St., Baltimore, Md. 21202.

Second-class postage paid at Baltimore, Md. 21202, and at additional mailing offices. Made in the United States of America. Copyright © 1972, American Society for Microbiology. All Rights Reserved.

## Clinical Microbiology, Virology, and Immunology

Evaluation of the In Vitro Activity of Tobramycin as Compared with That of Gentamicin Sulfate. WALTER H. TRAUB AND ELLA A. RAYMOND . . . . .	4
Automated Slide Staining Machine. W. LAWRENCE DREW, ANDERS N. PEDERSEN, AND JACQUES J. ROY . . . . .	17
Immunofluorescence Staining of Group B Coxsackieviruses. MORRIS L. V. FRENCH, NATHALIE J. SCHMIDT, RICHARD W. EMMONS, AND EDWIN H. LENNETTE . . . . .	54
Effects of Carbohydrates in Growth Medium on Agglutination of Several Species of <i>Salmonella</i> with Polyvalent H Antiserum. GEORGE J. BANWART AND MADELEINE J. KREITZER . . . . .	62
Comparison of Fluorescent Antibody Induced by Rubella Virus in Vaccinee and Convalescent Individuals. ANGELA SERAFINI, GEORGE C. COLE, AND ROBERT G. BRACKETT . . . . .	66
In Vitro Evaluation of Actinobolin as an Antibiotic for the Treatment of Periodontal Disease. P. J. ARMSTRONG, JR., AND D. E. HUNT . . . . .	88
Prophage Induction in Lysogenic <i>Escherichia coli</i> with <i>N</i> -Nitroso Compounds and Derivatives. BERNARD HEINEMANN . . . . .	91
Passive Hemagglutination-Inhibition Test for Typing Foot-and-Mouth Disease Virus. R. E. WARRINGTON AND Y. KAWAKAMI . . . . .	98
Mouse Potency Assay for Western Equine Encephalomyelitis Vaccines. DAVID M. ROBINSON, SANFORD BERMAN, AND JOSEPH P. LOWENTHAL . . . . .	104
Numerical Diagnostic Key for the Identification of <i>Enterobacteriaceae</i> . HERMAN BAER AND LOUIS WASHINGTON . . . . .	108
Antiviral Activity in Tissue Culture Systems of bis-Benzimidazoles, Potent Inhibitors of Rhinoviruses. J. B. SCHLEICHER, F. AQUINO, A. RUETER, W. R. RODERICK, AND R. N. APPELL . . . . .	113
Antiviral Activity of a bis-Benzimidazole Against Experimental Rhinovirus Infections in Chimpanzees. N. L. SHIPKOWITZ, R. R. BOWER, J. B. SCHLEICHER, F. AQUINO, R. N. APPELL, AND W. R. RODERICK . . . . .	117
Effect of Ionizing Irradiation on Susceptibility of McCoy Cell Cultures to <i>Chlamydia trachomatis</i> . F. B. GORDON, H. R. DRESSLER, A. L. QUAN, W. T. MCQUILKIN, AND J. I. THOMAS . . . . .	123
Reproducible Topical Staphylococcal Infection in Rats. FAITH GOLDSCHMIDT . . . . .	130
Electron Microscope Methods for the Identification of Adenoviruses Isolated in Micro Tissue Cultures. M. J. ROSENBAUM, R. C. KORY, K. A. SIEGESMUND, H. J. PEDERSEN, E. J. SULLIVAN, AND R. O. PECKINPAUGH . . . . .	141
Characterization of the Growth of Herpes Simplex Virus in Human Lymphoid Cells. A. MIZRAHI, J. R. MITCHEN, H. W. VON HEYDEN, J. MINOWADA, AND G. E. MOORE . . . . .	145
Disruption of Chemically Killed Bacterial Cells by a Synthetic Zeolite. GEORGE A. WISTREICH, MAX D. LECHTMAN, RICHARD F. BAKER, AND J. W. BARTHOLOMEW . . . . .	155
Rapid Preparation of Hemagglutinins of Togaviruses from Infected Cell Culture Fluids. A. J. DELLA-PORTA AND E. G. WESTAWAY . . . . .	158
Use of Pyocin 78-C2 in the Treatment of <i>Pseudomonas aeruginosa</i> Infection in Mice. D. J. MERRIKIN AND C. S. TERRY . . . . .	164
Preliminary Observations on the Uptake of Poliovirus by West Coast Shore Crabs. RUDOLPH DIGIROLAMO, LEOKADIA WICZYNSKI, MICHAEL DALEY, AND FLORENCIO MIRANDA . . . . .	170
Adaption of Swinepox Virus to an Established Cell Line. S. K. GARG AND R. C. MEYER . . . . .	180
Long-Term Preservation of <i>Bordetella pertussis</i> . HERBERT L. ECKERT AND DENNIS K. FLAHERTY . . . . .	186
Automatic Device for the Trypsinization of Animal Tissues. CHARLES SHIPMAN, JR., AND DAVID F. SMITH . . . . .	188

Animal Toxicity of Phytopathogenic Fungi. C. E. MAIN AND P. B. HAMILTON . . . .	193
Sensitivity of the $^{14}\text{CO}_2$ Radiometric Method for Bacterial Detection. JOHN R. WATERS . . . . .	198
Semi-Micro XC Cell Assay Technique for Murine Leukemia Virus. LESLIE RIECHERS BASS AND WILLIE TURNER . . . . .	200

### Food Microbiology and Toxicology

Microbial Flora of Pacific Oysters ( <i>Crassostrea gigas</i> ) Subjected to Ultraviolet-radiated Seawater. G. J. VASCONCELOS AND J. S. LEE . . . . .	11
Procedure for Isolation and Enumeration of <i>Vibrio parahaemolyticus</i> . C. VANDERZANT AND R. NICKELSON . . . . .	26
Survival of <i>Vibrio parahaemolyticus</i> in Shrimp Tissue Under Various Environmental Conditions. C. VANDERZANT AND R. NICKELSON . . . . .	34
Numerical Taxonomy of Coryneform Bacteria Isolated from Pond-Reared Shrimp ( <i>Penaeus aztecus</i> ) and Pond Water. C. VANDERZANT, P. W. JUDKINS, R. NICKELSON, AND H. A. FITZHUGH, JR. . . . .	38
Twenty-Four-Hour Immunofluorescence Technique for the Detection of Salmonellae in Nonfat Dry Milk. R. H. REAMER AND R. E. HARGROVE . . . . .	78
Growth of <i>Salmonellae typhimurium</i> in Skim Milk Concentrates. C. A. DEGA, J. M. GOEPFERT, AND C. H. AMUNDSON . . . . .	82
Inactivation of <i>Vibrio parahaemolyticus</i> in Distilled Water. J. S. LEE . . . . .	166
Metachromatic Agar-Diffusion Microslide Technique for Detecting Staphylococcal Nuclease in Foods. R. V. F. LACHICA, P. D. HOEFPRICH, AND C. GENIGEORGIS . . . . .	168
Effects on Turkey Poults of Rations Containing Corn Invaded by <i>Fusarium tricinctum</i> (Cda.) Sny. & Hans. C. M. CHRISTENSEN, R. A. MERONUCK, G. H. NELSON, AND J. C. BEHRENS . . . . .	177
New Mycotoxin, Trichotoxin A, from <i>Trichoderma viride</i> Isolated from Southern Leaf Blight-Infected Corn. C. T. HOU, A. CIEGLER, AND C. W. HESSELTINE . . . . .	183
Use of Dogs as an Assay for <i>Clostridium perfringens</i> Enterotoxin. M. L. BARTLETT, HOMER W. WALKER, AND RICHARD ZIPRIN . . . . .	196
Effect on Young Swine of Consumption of Rations Containing Corn Invaded by <i>Fusarium roseum</i> . C. M. CHRISTENSEN, C. J. MIROCHA, G. H. NELSON, AND J. F. QUAST . . . . .	202

### Ecology and Taxonomy

Aerosol Survival of <i>Pasteurella tularensis</i> and the Influence of Relative Humidity. C. S. COX AND L. J. GOLDBERG . . . . .	1
Variation in the Toxicity of Arsenic Compounds to Microorganisms and the Suppression of the Inhibitory Effects by Phosphate. E. W. B. DA COSTA . . . . .	46
Simple Method for Inducing Ascospore Formation in Yeasts. B. K. LONSANE, H. D. SINGH, J. N. BARUAH, AND M. S. IYENGAR . . . . .	161
Unusual Organism Which Gives a Positive Elevated Temperature Test for Fecal Coliforms. J. C. ADAMS . . . . .	170
Inoculation Technique for Fungus Cultures. RAMON M. FUSARO . . . . .	174
Interval Scanning Photomicrography of Microbial Cell Populations. L. E. CASIDA, JR. . . . .	190

### Metabolism and Products

Effect of Monosodium <i>n</i> -Alkylsalicylates on Spores of <i>Bacillus subtilis</i> . D. BUCKLEY AND J. THOMAS . . . . .	8
Stimulation of Lactic Streptococci in Milk by $\beta$ -Galactosidase. S. E. GILLILAND, M. L. SPECK, AND J. R. WOODARD, JR. . . . .	21
Microbial Degradation of Sterols. WILLIAM J. MARSHECK, STEPHEN KRAYCHY, AND ROBERT D. MUIR . . . . .	72
New Pseudomonad Utilizing Methanol for Growth. Y. CHALFAN AND R. I. MATELES . . . . .	135



## Clinical Microbiology, Virology, and Immunology

Effect of a Modified Kaolin Treatment on Serum. SAKAE INOUE AND REISAKU KONO.	203
Serological Studies on <i>Actinobacillus actinomyces-comitans</i> . G. PULVERER AND H. L. KO.	207
Purification of <i>Pseudomonas aeruginosa</i> Endotoxin by Membrane Partition Chromatography. NAZARIO RUBIO AND RUBENS LOPEZ.	211
Comparison of the Immunofluorescent-Cell Counting and Plaque Methods for the Assay of Vaccinia Virus. ABDUL L. IBRAHIM AND PHILIP C. LOH.	214
Epidemiological Differentiation of <i>Serratia marcescens</i> : Typing by Bacteriocin Production. J. J. FARMER III.	218
Epidemiological Differentiation of <i>Serratia marcescens</i> : Typing by Bacteriocin Sensitivity. J. J. FARMER III.	226
Effect of Oxidized Spermine and Other Aldehydes on the Infectivity of Vaccinia Virus. U. BACHRACH AND E. ROSENKOVITCH.	232
Factors Influencing the Production of H and M Antigens by <i>Histoplasma capsulatum</i> : Development and Evaluation of a Shake Culture Procedure. HUGH-BERT EHRHARD AND LEO PINE.	236
Factors Influencing the Production of H and M Antigens by <i>Histoplasma capsulatum</i> : Effect of Physical Factors and Composition of Medium. HUGH-BERT EHRHARD AND LEO PINE.	250
Structures Suggesting Cell-Wall-Deficient Forms Detected in Circulating Erythrocytes by Fluorochrome Staining. DONALD J. POHL, LIDA H. MATTMAN, AND LUCILLE TUNSTALL.	262
Standardized Antimicrobial Disc Susceptibility Testing of Anaerobic Bacteria. I. Susceptibility of <i>Bacteroides fragilis</i> to Tetracycline. VERA L. SUTTER, YUNG-YUAN KWOK, AND SYDNEY M. FINEGOLD.	268
Nucleic Acid Enzyme Studies of Nonfermentative Gram-Negative Bacteria Using Thin-Layer Chromatography. MARILYN M. KLEIN AND DONNA J. BLAZEVIC.	276
Stabilizing Effect of Magnesium Sulfate on Avian Infectious Bronchitis Virus Propagated in Chicken Embryo Kidney Cells. MANUEL F. CORIA.	281
Rapid Extraction Method with Pronase B for Grouping Beta-Hemolytic Streptococci. GRACE MARY EDERER, MARY M. HERRMANN, ROBERT BRUCE, JOHN M. MATSEN, AND S. STEPHEN CHAPMAN.	285
Hemagglutination Inhibition for Serogrouping of <i>Neisseria meningitidis</i> . R. L. COHEN AND M. S. ARTENSTEIN.	289
Bacteria of Porcine Skin, Xenografts, and Treatment with Neomycin Sulfate. RODNEY F. SMITH AND BARBARA L. EVANS.	293
Evaluation of the Auxotab Enteric 1 System for Identification of <i>Enterobacteriaceae</i> . JOHN A. WASHINGTON II, PAULINE K. W. YU, AND WILLIAM J. MARTIN.	298
Use of the Immunodiffusion Test in the Serodiagnosis of Aspergillosis. R. MARIE COLEMAN AND LEO KAUFMAN.	301
Mode of Transmission of <i>Pseudomonas aeruginosa</i> in a Burn Unit and an Intensive Care Unit in a General Hospital. SPYROS D. KOMINOS, CHARLES E. COPELAND, AND BARBARA GROSIK.	309
Solid-Phase Radioimmunoassay of Total and Influenza-Specific Immunoglobulin G. HARRY DAUGHARTY, DONNA T. WARFIELD, AND MARIANNE L. DAVIS.	360
Simple Method for the Preparation of Streptococcal Nucleases. STEPHEN C. MARKER AND ERNEST D. GRAY.	368
Co-infection of Mouse Spleen Cells with Murine Sarcoma Virus and Guaroa Virus. WILNA A. WOODS, WILLIE TURNER, AND MICHAEL A. CHIRIGOS.	372
Evaluation of Pseudose Agar as an Aid in the Identification of <i>Pseudomonas aeruginosa</i> . DWIGHT W. LAMBE, JR., AND PHYLLIS STEWART.	377
Volume Production of Reference Seed Virus and Immune Ascitic Fluids for Six Arboviruses. JULIAN FEILD AND S. S. KALTER.	382

Organisms Encountered in Urine Cultures Over a 10-Year Period. DONNA J. BLAZEVIC, JOANNE E. STEMPEL, AND JOHN M. MATSEN.....	421
Inhibition of the Indole Test Reaction by Sodium Nitrite. RODNEY F. SMITH, ROBERT R. ROGERS, AND CAROL L. BETTGE.....	423
Microtiter Plate Agglutination Test for <i>Salmonella</i> Antibodies. I. S. BARSOUH AND A. Y. AWAD.....	425

### Food Microbiology and Toxicology

Relationship of Pathogenicity to Tobacco Leaves and Toxicity to Chicks of Isolates of <i>Alternaria longipes</i> . E. K. SOBERS AND BEN DOUPNIK, JR.....	313
Fermenting Yeasts Associated with Softening and Gas-Pocket Formation in Olives. REESE H. VAUGHN, KENNETH E. STEVENSON, BHALCHANDRA A. DAVÉ, AND HYAN C. PARK.....	316
Relationships of Temperature and Sodium Chloride Concentration to the Survival of <i>Vibrio parahaemolyticus</i> in Broth and Fish Homogenate. DONNA COVERT AND MARGY WOODBURN.....	321
Heat Resistance of <i>Salmonellae</i> in Concentrated Milk. C. A. DEGA, J. M. GOEFFERT, AND C. H. AMUNDSON.....	415
Possible Origin of <i>Clostridium botulinum</i> Contamination of Eskimo Foods in Northwestern Alaska. LAWRENCE G. MILLER, PAUL S. CLARK, AND GEORGE A. KUNKLE.....	427
A Technique for Producing Large Yields of Vegetative Cell-Free Refractile <i>Clostridium perfringens</i> Spores of Unaltered Heat Resistance. EUGENE R. GOODENOUGH AND MYRON SOLBERG.....	429

### Ecology and Taxonomy

Use of Shake Cultures in a Semisolid Thioglycolate Medium for Differentiating Staphylococci from Micrococci. JAMES B. EVANS AND W. E. KLOOS.....	326
Fermentation of Isolated Pectin and Pectin from Intact Forages by Pure Cultures of Rumen Bacteria. CATHERINE M. GRADEL AND B. A. DEHORITY.....	332
Vitamin B <sub>12</sub> Production and Depletion in a Naturally Occurring Eutrophic Lake. PAUL A. GILLESPIE AND RICHARD Y. MORITA.....	341
Some Slime-Forming Heterofermentative Species of the Genus <i>Lactobacillus</i> . M. ELISABETH SHARPE, ELLEN I. GARVIE, AND R. H. TILBURY.....	389
Effect of Four Nematocides on Activities of Microorganisms in Soil. C. M. TU.....	398
Chromogenicity of <i>Streptomyces</i> . TADASHI ARAI AND YUZURU MIKAMI.....	402

### Metabolism and Products

Analysis of Free Amino Acid Pools in Fungal Mycelia. J. G. HEATHCOTE, D. M. DAVIES, AND C. HAWORTH.....	349
Batch- and Continuous-Culture Transients for Two Substrate Systems. C. N. STANDING, A. G. FREDRICKSON, AND H. M. TSUCHIYA.....	354
Degradation of Alkyl Benzene Sulfonate by <i>Pseudomonas</i> Species. R. S. HORVATH AND B. W. KOFT.....	407
Effect of Selected Herbicides on Bacterial Growth Rates. F. W. BREAZEALE AND N. D. CAMPER.....	431
Medium-Scale Production and Purification of Ochratoxin A, a Metabolite of <i>Aspergillus ochraceus</i> . N. D. DAVIS, G. A. SANSING, T. V. ELLENBURG, AND U. L. DIENER.....	433

Volume 23

## Contents for March

Number 3

### Clinical Microbiology, Virology, and Immunology

Method for Accelerated Identification of Arboviruses After Inoculation of Mice. TAM S. DAVID-WEST.....	437
Effect of Flaming Cotton-Plugged Tubes Upon the Contamination of Media During Culture Transfers. TILLMANN BRUNKER AND BERNAL FERNÁNDEZ.....	441

Oral Immunization with Polyvalent Streptomycin-Dependent <i>Escherichia coli</i> Vaccine. OSCAR FELSENFELD, ROBERT H. WOLF, WILLIAM E. GREER, AND RICHARD B. BRANNON.	444
Comparison of Indirect Hemagglutination and Immunodiffusion Tests for Detecting Type II Leukosis (Marek's) Infection in S- and K-Line Chickens. CHOU C. HONG AND MARTIN SEVOLAN.	449
Hemolytic Interaction of Newcastle Disease Virus and Chicken Erythrocytes. I. Quantitative Comparison Procedure. MICHAEL A. BRATT AND LUIS A. CLAVELL.	454
Hemolytic Interaction of Newcastle Disease Virus and Chicken Erythrocytes. II. Determining Factors. LUIS A. CLAVELL AND MICHAEL A. BRATT.	461
Modified Hemagglutination-Inhibition Test for Rubella Employing Human Group O Erythrocytes. NATHALIE J. SCHMIDT AND JUANITA DENNIS.	471
Enterovirus Concentration on Cellulose Membranes. CRAIG WALLIS, MARILYN HENDERSON, AND JOSEPH L. MELNICK.	476
Effect of NO <sub>2</sub> on Airborne Venezuelan Equine Encephalomyelitis Virus. RICHARD EHRLICH AND SOL MILLER.	481
Further Studies on the Anti-Immunoglobulin G Hemagglutination-Inhibition Test for Influenza. NICHOLAS HAHON, JAMES A. BOOTH, AND HERBERT L. ECKERT.	485
Comparison of a Newly Developed Latex Agglutination Test and an Immunodiffusion Test in the Diagnosis of Systemic Candidiasis. DAVID STICKLE, LEO KAUFMAN, SHARON O. BLUMER, AND DAVID W. McLAUGHLIN.	490
Evaluation of the Steril Filtration Blood Culture System. SILAS G. FARMER AND RICHARD A. KOMOROWSKI.	500
Efficiency of Commercial Air Filters Against Marek's Disease Virus. B. R. BURMESTER AND R. L. WITTER.	505
Infected Surface Wound: an Experimental Model and a Method for the Quantitation of Bacteria in Infected Tissues. DENNIS G. SAYMEN, PAUL NATHAN, IAN A. HOLDER, E. O. HILL, AND BRUCE G. MACMILLAN.	509
Mycoplasma: Growth Precipitation as a Serodiagnostic Method. A. KROGSGAARD-JENSEN.	553
Failure to Detect Cell-Associated Enterotoxin B in <i>Staphylococcus aureus</i> by Immunofluorescence. ARNE FORSGREN, URBAN FORSUM, AND HANS O. HALLANDER.	559
Evaluation of Gentamicin for Use in Virology and Tissue Culture. THOMAS W. SCHAFER, ANDREA PASCALE, GERARD SHIMONASKI, AND PAUL E. CAME.	565
Fluorescent-Antibody Techniques for the Identification of Group D Streptococci: Direct Staining Method. MARIA T. PAVLOVA, ELIZABETH BEAUVAIS, FRANCIS T. BREZENSKI, AND WARREN LITSKY.	571
Preparation of Poliovirus Labeled with Phosphorus-33. MARK D. SOBSEY, MICHAEL E. LAVIGNE, AND ROBERT C. COOPER.	623
Cytopathogenic Test for Feline Leukemia Virus Infections. S. R. S. RANGAN, MAE CHEONG WONG, PATRICIA P. MOYER, AND E. M. JENSEN.	628
Rapid Capillary Tube Method for Detecting Penicillin Resistance in <i>Staphylococcus aureus</i> . IRA G. ROSEN, JULIE JACOBSON, AND RANDAL RUDDERMAN.	649
Comparison of the Antigenicity of Phenol and Ethylenediaminetetraacetate Complexes Isolated from Cell Walls of <i>Salmonella enteritidis</i> . J. R. CHIPLEY.	651
Stability of Live Attenuated Venezuelan Equine Encephalitis Vaccine. ALBERT T. McMANUS AND DAVID M. ROBINSON.	654

### Food Microbiology and Toxicology

Bacteriological Survey of Fresh Pork Sausage Produced at Establishments Under Federal Inspection. BERNARD F. SURKIEWICZ, RALPH W. JOHNSTON, R. PAUL ELLIOTT, AND E. RUTH SIMMONS.	515
Rapid Recovery of <i>Escherichia coli</i> from Estuarine Water. WALLACE H. ANDREWS AND MAYNARD W. PRESNELL.	521
Effect of Type of Enrichment and Duration of Incubation on <i>Salmonella</i> Recovery from Meat-and-Bone Meal. C. N. HUHTANEN AND J. NAGHSKI.	578
Studies of the Toxicity of <i>Helminthosporium maydis</i> . A. CIEGLER, J. L. RICHARD, J. J. ELLIS, AND S. J. CYSEWSKI.	586

- Identification and Aflatoxin Production of Molds Isolated from Country Cured Hams.  
MARIJA SUTIC, J. C. AYRES, AND P. E. KOEHLER. . . . . 654

### Ecology and Taxonomy

- Use of Aromatic Compounds for Growth and Isolation of *Zoogloea*. RICHARD F. UNZ  
AND SAMUEL R. FARRAH. . . . . 524
- Characterization of Indole-Positive *Proteus mirabilis*. JOHN M. MATSEN, DONNA J.  
BLAZEVIC, JOYCE A. RYAN, AND WILLIAM H. EWING. . . . . 592
- Technique for Measuring by  $^{14}\text{CO}_2$  Uptake by Soil Microorganisms In Situ. DAVID W.  
SMITH, CARL B. FLIERMANS, AND THOMAS D. BROCK. . . . . 595
- Microflora of Soil as Viewed by Transmission Electron Microscopy. H. C. BAE, E.  
H. COTA-ROBLES, AND L. E. CASIDA, JR. . . . . 637
- Differentiation of Sterol-Requiring from Sterol-Nonrequiring Mycoplasmas by Ampho-  
tericin B. S. ROTTEM. . . . . 659
- Corrected Identification of a Test Organism (ATCC 4352) Previously Thought to be  
*Escherichia coli*. CLAUDE P. BROWN AND FREDERIC H. WILSON. . . . . 661
- Automated Device for Preparing Agar Media. G. LIBMAN, S. BOEDECKER, AND J.  
GASTON. . . . . 662

### Metabolism and Products

- Semiautomated Method for Microbiological Vitamin Assays. T. M. BERG AND H. A.  
BEHAGEL. . . . . 531
- Bacterial Cell Production from Hexadecane at High Temperatures. DIETER A. SU-  
KATSCH AND MARVIN J. JOHNSON. . . . . 543
- Ester Synthesis by *Zoogloea ramigera* 115 Grown in the Presence of Ethanol. GAYLE H.  
JOYCE AND PATRICK R. DUGAN. . . . . 547
- Reduction of the 20-Carbonyl Group of C-21 Steroids by Spores of *Fusarium solani* and  
Other Microorganisms. I. Side-Chain Degradation, Epoxide Cleavage, and Sub-  
strate Specificity. ROSAIRE PLOURDE, OSSAMA M. EL-TAYEB, AND HAMDALLAH  
HAFEZ-ZEDAN. . . . . 601
- Tenuazonic Acid, a Toxin Produced by *Alternaria alternata*. R. A. MERONUCK, J. A.  
STEELE, C. J. MIROCHA, AND C. M. CHRISTENSEN. . . . . 613
- Sporostatic and Sporocidal Properties of Aqueous Formaldehyde. RALPH TRUJILLO  
AND THOMAS J. DAVID. . . . . 618
- Identification of *N,O*-Dimethylhydroxylamine as a Microbial Degradation Product of  
the Herbicide, Linuron. G. ENGELHARDT, P. R. WALLNÖFER, AND R. PLAPP. . . . . 664
- L-Asparaginase Synthesis by *Erwinia aroideae*. F. S. LIU AND J. E. ZAJIC. . . . . 667
- New Method of Intermittent Feeding in Penicillin Biosynthesis. V. MATELOVÁ, A.  
BŘEČKA, AND J. MATOUŠKOVÁ. . . . . 669
- Factors Influencing L-Asparaginase Production by *Erwinia aroideae*. R. E. PETERSON  
AND A. CIEGLER. . . . . 671

## Volume 23

## Contents for April

## Number 4

### Clinical Microbiology, Virology, and Immunology

- Lack of Significant Oncogenicity of Biological Products in Hamsters. CLAIRE B. COX,  
JOHN LONDON, MARION G. VALERIO, AMOS PALMER, RUTH L. KIRSCHSTEIN, AND  
STANLEY H. SINGER. . . . . 675
- Rapid Ornithine Decarboxylase Test for the Identification of *Enterobacteriaceae*.  
GUNNAR D. FAY AND ARTHUR L. BARRY. . . . . 710
- Separation of *Treponema pallidum* from Tissue Substances by Continuous-Flow Zonal  
Centrifugation. MYRTLE L. THOMAS, J. WALTER CLARK, JR., GEORGE B. CLINE,  
NORMAN G. ANDERSON, AND HAROLD RUSSELL. . . . . 714
- Stable Reagent for the Detection of Antibody to the Specific Fraction I Antigen of  
*Yersinia pestis*. JAMES H. RUST, JR., SANFORD BERMAN, WILLIAM H. HABIG,  
JOHN D. MARSHALL, JR., AND DAN C. CAVANAUGH. . . . . 721

Coagulase and Deoxyribonuclease Activities of Staphylococci Isolated from Clinical Sources. HARRY E. MORTON AND JUDITH COHN.....	725
Concentration and Purification of Influenza Virus on Insoluble Polyelectrolytes. CRAIG WALLIS, AKIRA HOMMA, AND JOSEPH L. MELNICK.....	740
Detection of Chlamydial Antibodies in Animal Sera by Double Diffusion in Gel. ALMEN L. BARRON, PAUL G. CASTE, BIMLA PAUL, AND LESLIE A. PAGE.....	770
Influence of Serum and Calcium on the Bactericidal Activity of Gentamicin and Carbenicillin on <i>Pseudomonas aeruginosa</i> . STARKEY D. DAVIS AND ANTOINETTE IANNETTA.....	775
Microculture Plaque Assay for Human and Simian Cytomegaloviruses. SHUNZO CHIBA, ROBERT L. STRIKER, JR., AND MATILDA BENYESH-MELNICK.....	780
Estimating the Number of Organisms in Quantal Assays. G. WYSHAK AND K. DETRE.....	784
Large-Scale Production of Lambda Bacteriophage and Purified Lambda Deoxyribonucleic Acid. ALICE DE CZEKALA, DANIEL LUK, AND PAUL BARTL.....	791
Laboratory Mill for Pulverizing and Homogenizing Nail Specimens as an Aid to Microscopy and Culture Confirmation of Onychomycosis. GEORGE M. LUEDEMANN AND ERNEST LEBRETON.....	814
Modification of Schaefer's Procedure for Serotyping of Organisms of the <i>Mycobacterium avium</i> — <i>M. intracellulare</i> — <i>M. scrofulaceum</i> complex. M. REZNIKOV AND JANET H. LEGGO.....	819
In Vitro Studies on the Isolation of Genital Mycoplasmas from Blood. YHU-HSIUNG LEE, PENRHYN E. BAILEY, AND WILLIAM M. MCCORMACK.....	824
A Method to Render Unstained Mycobacterial Smears Safe for Storage or Shipment. E. B. BLAIR, W. W. BRETHERTON, AND A. H. TULL.....	826
Reproducibility of a Neuraminidase Inhibition Test Employed to Measure Anti-Influenza Neuraminidase Antibody. A. V. HENNESSY AND F. M. DAVENPORT.....	827
Practical Tray-Rack for Culture Dish Incubation. MARTIN R. WOODWARD AND C. TERRENCE DOLAN.....	829
Preliminary Report: a System for Typing <i>Salmonella thompson</i> . M. GERSHAM.....	831

### Food Microbiology and Toxicology

<i>Salmonella</i> Testing of Pooled Pre-Enrichment Broth Cultures for Screening Multiple Food Samples. W. R. PRICE, R. A. OLSEN, AND J. E. HUNTER.....	679
Bruised Poultry Tissue as a Possible Source of Staphylococcal Infection. C. T. ROSKEY AND M. K. HANDY.....	683
Efficiency of <i>Salmonella</i> Isolation from Meat-and-Bone Meal of One 300-g Sample Versus Ten 30-g Samples. C. N. HUHTANEN, J. NAGHSKI, AND E. S. DELLA-MONICA.....	688
Studies on Variants of <i>Bacillus stearothermophilus</i> Strain NCA 1518. R. D. HUMBERT, ANSELMA DEGUZMAN, AND M. L. FIELDS.....	693
Production of Types A and B Spores of <i>Clostridium botulinum</i> by the Biphasic Method: Effect on Spore Population, Radiation Resistance, and Toxigenicity. ABE ANELLIS, D. BERKOWITZ, D. KEMPER, AND D. B. ROWLEY.....	734
Interrelationship of Heat and Relative Humidity in the Destruction of <i>Clostridium botulinum</i> Type E Spores on Whitefish Chubs. PAUL J. PACE, EDWARD R. KRUMBIEGEL, AND HENRY J. WISNIEWSKI.....	750
Steam Versus Hot-Water Scalding in Reducing Bacterial Loads on the Skin of Commercially Processed Poultry. THOMAS E. PATRICK, T. L. GOODWIN, J. A. COLLINS, R. C. WYCHE, AND B. E. LOVE.....	796
Antimicrobial Protection of Moisturized Deglet Noor Dates. H. R. BOLIN, A. D. KING, JR., W. L. STANLEY, AND L. JURD.....	799
Characterization of the Repair of Injury Induced by Freezing <i>Salmonella anatum</i> . B. RAY, D. W. JANSSEN, AND F. F. BUSTA.....	803

### Ecology and Taxonomy

Ruminal Bacterial Degradation of Benzo(b)thien-4-yl Methylcarbamate (Mobam) and Effect of Mobam on Bacteria. PHLETUS P. WILLIAMS AND ROSA L. STOLZENBERG.....	745
---	-----



- Ammonium, Nitrate, and Total Nitrogen in the Soil Water of Feedlot and Field Soil Profiles. L. F. ELLIOTT, T. M. MCCALLA, L. N. MIELKE, AND T. A. TRAVIS . . . 810

### Metabolism and Products

- Mechanism of Proline Production by *Kurthia cateniforma*. JYOJI KATO, HIROSHI FUKUSHIMA, MASAHIKO KISUMI, AND ICHIRO CHIBATA . . . 699
- Induction of Prodigiosin Biosynthesis After Shift-Down in Temperature of Nonproliferating Cells of *Serratia marcescens*. S. M. HUSSAIN QADRI AND ROBERT P. WILLIAMS . . . 704
- Effect of L-Aspartic Acid and L-Glutamic Acid on Production of L-Proline. JYOJI KATO, MASAHIKO KISUMI, AND ICHIRO CHIBATA . . . 758
- Comparison of the Substrate Specificities of the  $\beta$ -Lactamases from *Klebsiella aerogenes* 1082E and *Enterobacter cloacae* P99. MONICA J. MARSHALL, G. W. ROSS, K. V. CHANTER, AND ANNE M. HARRIS . . . 765
- Production of Staphylococcal Enterotoxin A on Cellophane-Over-Agar. T. E. MINOR AND E. H. MARTH . . . 833
- Poria weirii* as a Possible Commercial Source of Peroxidase. J. W. KOENIGS . . . 835
- Simplified Storage and Retrieval of Stock Cultures. JANICE G. NAGEL AND LAWRENCE J. KUNZ . . . 837

## Volume 23

## Contents for May

## Number 5

### Clinical Microbiology, Virology, and Immunology

- Preparation of Purified Suspensions of *Coxiella burnetii* by Genetron Extraction Followed by Continuous-Flow Ultracentrifugation. DORIA R. DUBOIS, ERNEST C. CUTCHINS, SANFORD BERMAN, JOSEPH P. LOWENTHAL, AND ROBERT L. TIMCHAK . . . 841
- Oropharyngeal Cultures of Patients in Protected Environment Units: Evaluation of Semiquantitative Technique During Antibiotic Prophylaxis. DIANNE A. JOHNSTON AND GERALD P. BODEY . . . 846
- Studies of Antigens for Complement Fixation and Gel Diffusion Tests in the Diagnosis of Infections Caused by *Brucella ovis* and Other *Brucella*. DONALD M. MYERS, LOIS M. JONES, AND VICTOR VARELA-DIAZ . . . 894
- Serologic Response of Turkeys to an Agent Associated with Infectious Enteritis (Bluecomb). C. A. CARSON, S. A. NAQI, AND C. F. HALL . . . 903
- Yellow Fever Vaccine. V. Antibody Response in Monkeys Inoculated with Graded Doses of the 17D Vaccine. RICHARD A. MASON, NICOLA M. TAURASO, ROBERT K. GINN, THOMAS C. O'BRIEN, AND ROY W. TRIMMER . . . 908
- Immunogenicity of Rabies Virus Inactivated by  $\beta$ -Propiolactone, Acetyleneimine, and Ionizing Irradiation. T. J. WIKTOR, H. G. AASLESTAD, AND M. M. KAPLAN . . . 914
- Quantitative Urine Culture Method Using Plastic "Paddle" Containing Dual Media. WILLIAM A. CRAIG AND CALVIN M. KUNIN . . . 919
- Mass Purification of Nucleopolyhedrosis Virus Inclusion Bodies in the K-Series Centrifuge. J. P. BREILLATT, J. N. BRANTLEY, H. M. MAZZONE, M. E. MARTIGNONI, J. E. FRANKLIN, AND N. G. ANDERSON . . . 923
- Microantiglobulin Test for Detecting *Salmonella typhimurium* Agglutinins. J. E. WILLIAMS AND A. D. WHITEMORE . . . 931
- Radial Immunodiffusion: a Simple and Rapid Method for Detection of Marek's Disease Antigen(s). W. W. MARQUARDT . . . 942
- Identification and Quantitation of the Components of Polyvalent Inactivated Influenza Virus Vaccines by Immunodiffusion. MARTIN G. MYERS AND NICOLA M. TAURASO . . . 946
- Comparative Immunogenicities of Chikungunya Vaccines Propagated in Monkey Kidney Monolayers and Chick Embryo Suspension Cultures. ARTHUR WHITE, SANFORD BERMAN, AND JOSEPH P. LOWENTHAL . . . 951



Phase Variation of Andrewes in <i>Salmonella enteritidis</i> Bioserotype Paratyphi-A. ALMA C. McWHORTER, GERALDINE A. HUNTLEY, WILLIAM H. EWING, AND GEORGE J. HERMANN.....	953
Evaluation of Two Commercially Available Media for Detection of Bacteremia. JOHN A. WASHINGTON II.....	956
Bacteriocin Typing of <i>Serratia marcescens</i> Isolates of Known Serotype/-Group. WALTER H. TRAUB.....	979
Continued Surveillance of <i>Serratia marcescens</i> Infections by Bacteriocin Typing; Investigation of Two Outbreaks of Cross-Infection in an Intensive Care Unit. WALTER H. TRAUB.....	982
<i>Neisseria gonorrhoeae</i> : Colonial Morphology of Rectal Isolates. MICHAEL T. KOVALCHIK AND STEPHEN J. KRAUS.....	986
Storage of Conidia of <i>Penicillium chrysogenum</i> in Liquid Nitrogen. K. D. MAC- DONALD.....	990
Immunoperoxidase Localization of Herpes Zoster Virus and Simian Virus 40 in Cell Culture. ALAN L. SHABO, JOHN C. PETRICCIANI, AND RUTH L. KIRSCHSTEIN.....	1001
Large-Volume Purification of Tumor Viruses by Use of Zonal Centrifuges. I. TOPLIN AND P. SOTTONG.....	1010
Purification of Large Quantities of <i>Coxiella burnetii</i> Rickettsia by Density Gradient Zonal Centrifugation. PETER G. CANONICO, MATTHEW J. VAN ZWIETEN, AND WILLIAM A. CHRISTMAS.....	1015
Apparent Spontaneous Induction of <i>Staphylococcus aureus</i> Isolated from Clinical Sources. LOUIS E. BLOUSE, CHARLES U. MAUNEY, ROBERT V. MARRARO, AND HARSTRY J. DUPUY.....	1023
Titration of Adenovirus by Counting Cells Containing Virus-Induced Inclusion Bodies. JOSEPH WEBER.....	1025
Improved Skin Test for Detection of T-2 Toxin. RU-DONG WEI, E. B. SMALLEY, AND F. M. STRONG.....	1029

### Food Microbiology and Toxicology

Isolation and Identification of Xanthotoxin (8-Methoxypsoralen) and Bergapten (5-Methoxypsoralen) from Celery Infected with <i>Sclerotinia sclerotiorum</i> . C. M. WU, P. E. KOEHLER, AND J. C. AYRES.....	852
Revival and Subsequent Isolation of Heat-Injured Bacteria by a Membrane Filter Technique. J. H. GOFF, T. J. CLAYDON, AND J. J. IANDOLO.....	857
Susceptibility of Cheese and Yoghurt Starter Bacteria to Antibiotics. T. M. COGAN.....	960
Antigenic Relationships Among Strains of <i>Vibrio parahaemolyticus</i> . R. M. TWEDT, P. L. SPAULDING, AND H. M. JOHNSON.....	966
Tolerance of Staphylococcal Thermonuclease to Stress. R. VICTOR F. LACHICA, PAUL D. HOEPRICH, AND HANS P. RIEMANN.....	994
Susceptibility of Phytopathogenic Bacteria to Wheat Purothionins In Vitro. R. FERNANDEZ DE CALEYA, BLANCA GONZALEZ-PASCUAL, F. GARCÍA-OLMEDO, AND PILAR CARBONERO.....	998

### Ecology and Taxonomy

Factors Affecting Comparative Resistance of Naturally Occurring and Subcultured <i>Pseudomonas aeruginosa</i> to Disinfectants. L. A. CARSON, M. S. FAVERO, W. W. BOND, AND N. J. PETERSEN.....	863
Effect of Several Clay Minerals and Humic Acid on the Survival of <i>Klebsiella aerogenes</i> Exposed to Ultraviolet Irradiation. GABRIEL BITTON, Y. HENIS, AND N. LAHAV.....	870
Simple Dye Release Assay for Determining Cellulolytic Activity of Fungi. RAYMOND P. POINCELOT AND PETER R. DAY.....	875
Virus in Water. II. Evaluation of Membrane Cartridge Filters for Recovering Low Multiplicities of Poliovirus from Water. WILLIAM F. HILL, JR., ELMER W. AKIN, WILLIAM H. BENTON, AND THEODORE G. METCALF.....	880
Mechanism of the Inactivation of the Bacteriophage T <sub>1</sub> in Aerosols. T. TROUWBORST AND J. C. DE JONG.....	938

- High-Intensity Vapor Lamp for Biological Research. DONALD A. LeBUIs, JOHN R. LORENZ, WILLIAM J. EISLER, JR., AND ROBERT B. WEBB..... 972
- Peptonized Milk as an Enumeration Medium for Soil Bacteria. JOHN M. LARKIN.... 1031

### Metabolism and Products

- Use of Gas Chromatography for Determining Catabolic Products of Arginine by Bacteria. C. WAYNE MOSS, M. A. LAMBERT, AND W. B. CHERRY ..... 889
- Tapé Fermentation. KO SWAN DJIEN..... 976
- Cultivation of Leptospire: Fatty Acid Requirements. R. C. JOHNSON AND JUDITH K. WALBY..... 1027
- Metabolism of Pentachlorophenol by an Axenic Bacterial Culture. JOSEPH P. CHU AND EDWIN J. KIRSCH..... 1033

## Volume 23

## Contents for June

## Number 6

### Clinical Microbiology, Virology, and Immunology

- Evaluation of Assay Methods for Hepatitis-Associated Antigen. ROBERT E. KISSLING AND LEWELLYS F. BARKER..... 1037
- Quantitative Measurement of Precipitating Antibodies in Streptococcal Grouping Antisera by the Single Radial Immunodiffusion Technique. WILLIAM K. HARELL AND J. RICHARD GEORGE..... 1047
- Hazard Inherent in Microbial Tracers: Reduction of Risk by the Use of *Bacillus stearothermophilus* Spores in Aerobiology. SYED A. SATTAR, E. J. SYNEK, J. C. N. WESTWOOD, AND PIERRETTE NEALS..... 1053
- Agar Block Technique for Identification of Mycoplasmas by Use of Fluorescent Antibody. E. J. BAAS AND D. E. JASPER..... 1097
- Bacteremia After Genitourinary Tract Manipulation: Bacteriological Aspects and Evaluation of Various Blood Culture Systems. N. M. SULLIVAN, V. L. SUTTER, W. T. CARTER, H. R. ATTEBERY, AND S. M. FINEGOLD..... 1100
- Equine Abortion (Herpes) Virus: Strain Differences in Susceptibility to Inactivation by Dithiothreitol. B. KLINGEBORN AND Z. DINTER..... 1121
- Recognition of Group D Streptococcal Species of Human Origin by Biochemical and Physiological Tests. RICHARD R. FACKLAM..... 1131
- Tentative Method for the Qualitative Detection and the Quantitative Assessment of Air Contamination by Drugs. A. BUOGO AND V. EBOLI..... 1149
- Susceptibility of Gnotobiotic Swine to *Escherichia coli* Isolated from Nonenteric Human Infections. R. C. MEYER, H. E. RHOADES, AND J. SIMON..... 1167
- Improved Antihyaluronidase Test Applicable to the Microtitration Technique. RICHARD A. MURPHY..... 1170
- New Technique for Biotyping. P. A. M. GUINÉE, W. J. VAN LEEUWEN, AND W. H. JANSSEN..... 1172

### Food Microbiology and Toxicology

- Uptake of Bacteriophage and Their Subsequent Survival in Edible West Coast Crabs After Processing. R. DiGIROLAMO, L. WICZYNSKI, M. DALEY, F. MIRANDA, AND C. VIEHWEGER..... 1073
- Selective Medium for Hydrogen Sulfide Production by Salmonellae. A. P. PADRON AND W. B. DOCKSTADER..... 1107
- Factors Affecting Organic Acid Production by Sourdough (San Francisco) Bacteria. HENRY NG..... 1153

### Ecology and Taxonomy

- Microbial Utilization of Crude Oil. A. JOBSON, F. D. COOK, AND D. W. S. WESTLAKE. 1082
- Effect of Relative Humidity on the Inactivation of Airborne *Serratia marcescens* by Ultraviolet Radiation. R. L. RILEY AND J. E. KAUFMAN..... 1113

Dry Heat Inactivation of <i>Bacillus subtilis</i> var. <i>niger</i> Spores as a Function of Relative Humidity. J. P. BRANNEN AND D. M. GARST.....	1125
Simple Liquid Scrubber for Large-Volume Air Sampling. LEE M. BUCHANAN, J. BRUCE HARSTAD, JOHN C. PHILLIPS, EUGENE LAFFERTY, CHARLES M. DAHLGREN, AND HERBERT M. DECKER.....	1140
Scanning Electron Microscopy of Microbial Cells on Membrane Filters. R. L. TODD AND T. J. KERR.....	1160

### Metabolism and Products

Coupled-Enzyme System for Measuring Viral Neuraminidase Activity. DONALD W. ZIEGLER AND HARRIET D. HUTCHINSON.....	1060
Mellein and 4-Hydroxymellein Production by <i>Aspergillus ochraceus</i> Wilhelm. JACK H. MOORE, NORMAN D. DAVIS, AND URBAN L. DIENER.....	1067
Physical State in Which Naphthalene and Bibenzyl Are Utilized by Bacteria. RICHARD S. WODZINSKI AND DONALD BERTOLINI.....	1077
Loss of Lactose Metabolism in Lactic Streptococci. L. L. MCKAY, K. A. BALDWIN, AND E. A. ZOTTOLA.....	1090
Bacterial Degradation of Benzyl Isothiocyanate. CHUNG-SHIH TANG, KALONG BHOTHIPAKSA, AND HILMER A. FRANK.....	1145
L-Asparaginase Production by <i>Streptomyces griseus</i> . PETER J. DEJONG.....	1163
Survey for Fusaria That Elaborate T-2 Toxin. H. R. BURMEISTER, J. J. ELLIS, AND C. W. HESSELTINE.....	1165



# AUTHOR INDEX

## VOLUME 23

- Aaslestad, H. G., 914  
 Adams, J. C., 172  
 Akin, Elmer W., 880  
 Amundson, C. H., 82, 415  
 Anderson, N. G., 923  
 Anderson, Norman G., 714  
 Andrews, Wallace H., 521  
 Anellis, Abe, 734  
 Appell, R. N., 113, 117  
 Aquino, F., 113, 117  
 Arai, Tadashi, 402  
 Armstrong, P. J., Jr., 88  
 Artenstein, M. S., 289  
 Attebery, H. R., 1101  
 Awad, A. Y., 425  
 Ayres, J. C., 656, 852
- Baas, E. J., 1097  
 Bachrach, U., 232  
 Bae, H. C., 637  
 Baer, Herman, 108  
 Bailey, Penrhyn E., 824  
 Baker, Richard F., 155  
 Baldwin, K. A., 1090  
 Banwart, George J., 62  
 Barker, Lewellys F., 1037  
 Barron, Almen L., 770  
 Barry, Arthur L., 710  
 Barsoum, I. S., 425  
 Bartholomew, J. W., 155  
 Bartl, Paul, 791  
 Bartlett, M. L., 196  
 Baruah, J. N., 161  
 Bass, Leslie Riechers, 200  
 Beauvais, Elizabeth, 571  
 Behagel, H. A., 531  
 Behrens, J. C., 177  
 Benton, William H., 880  
 Benyesh-Melnick, Matilda, 780  
 Berg, M., 531  
 Berkowitz, D., 734  
 Berman, Sanford, 104, 721, 841, 951  
 Bertolini, Donald, 1077  
 Bettge, Carol L., 423  
 Bhothipaksa, Kalong, 1145  
 Bitton, Gabriel, 870  
 Blair, E. B., 826  
 Blazeovic, Donna J., 276, 421, 592  
 Blouse, Louis E., 1023  
 Blumer, Sharon O., 490  
 Bodey, Gerald P., 846  
 Boedecker, S., 662  
 Bolin, H. R., 799  
 Bond, W. W., 863  
 Booth, James A., 485  
 Bower, R. R., 117
- Brackett, Robert G., 66  
 Brannen, J. P., 1125  
 Brannon, Richard B., 444  
 Brantley, J. N., 923  
 Bratt, Michael A., 454, 461  
 Breazeale, F. W., 431  
 Břečka, A., 669  
 Breillatt, J. P., 923  
 Bretherton, W. W., 826  
 Brezenski, Francis T., 571  
 Brock, Thomas D., 595  
 Brown, Claude P., 661  
 Bruce, Robert, 285  
 Brunner, Tillmann, 441  
 Buchanan, Lee M., 1140  
 Buckley, D., 8  
 Buogo, A., 1149  
 Burmeister, H. R., 1165  
 Burmester, B. R., 505  
 Busta, F. F., 803
- Came, Paul E., 565  
 Camper, N. D., 431  
 Canonico, Peter G., 1015  
 Carbonero, Pilar, 998  
 Carson, C. A., 903  
 Carson, L. A., 863  
 Carter, W. T., 1101  
 Casida, L. E., Jr., 190, 637  
 Caste, Paul G., 770  
 Cavanaugh, Dan C., 721  
 Chalfan, Y., 135  
 Chanter, K. V., 765  
 Chapman, S. Stephen, 285  
 Cherry, W. B., 889  
 Chiba, Shunzo, 780  
 Chibata, Ichiro, 699/758  
 Chipley, J. R., 651  
 Chirigos, Michael A., 372  
 Christensen, C. M., 177, 202, 613  
 Christmas, William A., 1015  
 Chu, Joseph P., 1033  
 Ciegler, A., 183, 586, 671  
 Clark, J. Walter, Jr., 714  
 Clark, Paul S., 427  
 Clavell, Luis A., 454, 461  
 Claydon, T. J., 857  
 Cline, George B., 714  
 Cogan, T. M., 960  
 Cohen, R. L., 289  
 Cohn, Judith, 725  
 Cole, George C., 66  
 Coleman, R. Marie, 301  
 Collins, J. A., 796  
 Cook, F. D., 1082  
 Cooper, Robert C., 623  
 Copeland, Charles E., 309
- Coria, Manuel F., 281  
 Cota-Robles, E. H., 637  
 Covert, Donna, 321  
 Cox, C. S., 1  
 Cox, Claire B., 675  
 Craig, W. A., 919  
 Cutchins, Ernest C., 841  
 Cysewski, S. J., 586
- DaCosta, E. W. B., 46  
 Dahlgren, Charles M., 1140  
 Daley, M., 1073  
 Daley, Michael, 170  
 Daugharty, Harry, 360  
 Davé, Bhalchandra A., 316  
 Davenport, F. M., 827  
 David, Thomas J., 618  
 David-West, Tam., S., 437  
 Davies, D. M., 349  
 Davis, Marianne L., 360  
 Davis, Norman D., 433, 1067  
 Davis, Starkey D., 775  
 Day, Peter R., 875  
 deCaleya, R. Fernandez, 998  
 Decker, Herbert M., 1140  
 deCzekala, Alice, 791  
 Dega, C. A., 82, 415  
 DeGuzman, Anselma, 693  
 Dehority, B. A., 332  
 deJong, J. C., 938  
 DeJong, Peter J., 1163  
 dellaMonica, E. S., 688  
 Della-Porta, A. J., 158  
 Dennis, Juanita, 471  
 Detre, K., 784  
 Diener, Urban L., 433, 1067  
 DiGirolamo, Rudolph, 170, 1073  
 Dinter, Z., 1121  
 Dockstader, W. B., 1107  
 Dolan, C. Terrence, 829  
 Doupnik, Ben, Jr., 313  
 Dressler, H. R., 123  
 Drew, W. Lawrence, 17  
 Dubois, Doria R., 841  
 Dugan, Patrick R., 547  
 Dupuy, Harstry J., 1023
- Eboli, V., 1149  
 Eckert, Herbert L., 186, 485  
 Ederer, Grace Mary, 285  
 Ehrhard, Hugh-Bert, 236, 250  
 Ehrlich, Richard, 481  
 Eisler, William J., Jr., 972  
 Ellenburg, T. V., 433  
 Elliott, L. F., 810  
 Elliott, R. Paul, 515  
 Ellis, J. J., 586, 1165  
 El-Tayeb, Ossama M., 601

- Emmons, Richard W., 54  
 Engelhardt, G., 664  
 Evans, Barbara L., 293  
 Evans, James B., 326  
 Ewing, William H., 592, 953
- Facklam, Richard R., 1131  
 Farmer, J. J., III, 218, 226  
 Farmer, Silas G., 500  
 Farrah, Samuel R., 524  
 Favero, M. S., 863  
 Fay, Gunnar D., 710  
 Feild, Julian, 382  
 Felsenfeld, Oscar, 444  
 Fernández, Bernal, 441  
 Fields, M. L., 693  
 Finegold, Sydney M., 268, 1101  
 Fitzhugh, H. A., Jr., 38  
 Flaherty, Dennis M., 186  
 Fliermans, Carl B., 595  
 Forsgren, Arne, 559  
 Forsum, Urban, 559  
 Frank, Hilmer A., 1145  
 Franklin, J. E., 923  
 Fredrickson, A. G., 354  
 French, Morris L. V., 54  
 Fukushima, Hiroshi, 699  
 Fusaro, Ramon M., 174
- Garcia-Olmedo, F., 998  
 Garg, S. K., 180  
 Garst, D. M., 1125  
 Garvie, Ellen I., 389  
 Gaston, J., 662  
 Genigeorgis, C., 168  
 George, J. Richard, 1047  
 Gershman, M., 831  
 Gillespie, Paul A., 341  
 Gilliland, S. E., 21  
 Ginn, Robert K., 908  
 Goepfert, J. M., 82, 415  
 Goff, J. H., 857  
 Goldberg, L. J., 1  
 Goldschmidt, Faith, 130  
 Gonzalez-Pascual, Blanca, 998  
 Goodenough, Eugene R., 429  
 Goodwin, T. L., 796  
 Gordon, F. B., 123  
 Gradel, Catherine M., 332  
 Gray, Ernest D., 368  
 Greer, William E., 444  
 Grosiak, Barbara, 309  
 Guinée, P. A. M., 1172
- Habig, William H., 721  
 Hafez-Zedan, Hamdallah, 601  
 Hahon, Nicholas, 485  
 Hall, C. F., 903  
 Hallander, Hans O., 559  
 Handy, M. K., 683  
 Hamilton, P. B., 193  
 Hargrove, R. E., 78  
 Harrell, William K., 1047  
 Harris, Anne M., 765
- Harstad, J. Bruce, 1140  
 Haworth, C., 349  
 Heathcote, J. G., 349  
 Heinemann, Bernard, 91  
 Henderson, Marilyn, 476  
 Henis, Y., 870  
 Hennessy, A. V., 827  
 Hermann, George J., 953  
 Herrmann, Mary M., 285  
 Hesseltine, C. W., 183, 1165  
 Hill, E. O., 509  
 Hill, William F., Jr., 880  
 Hoepflich, Paul D., 168, 994  
 Holder, Ian A., 509  
 Homma, Akira, 740  
 Hong, Chou C., 449  
 Hou, C. T., 183  
 Horvath, R. S., 407  
 Huhtanen, C. N., 578, 688  
 Humbert, R. D., 693  
 Hunt, D. E., 88  
 Hunter, J. E., 679  
 Huntley, Geraldine A., 953  
 Hutchinson, Harriet D., 1060
- Iandolo, J. J., 857  
 Iannetta, Antoinette, 775  
 Ibrahim, Abdul, 214  
 Inouye, Sakae, 203  
 Iyengar, M. S., 161
- Jacobson, Julie, 649  
 Jansen, W. H., 1172  
 Janssen, D. W., 803  
 Jasper, D. E., 1097  
 Jensen, E. M., 628  
 Jobson, A., 1082  
 Johnson, H. M., 966  
 Johnson, Marvin J., 543  
 Johnson, R. C., 1027  
 Johnston, Dianne A., 846  
 Johnston, Ralph W., 515  
 Jones, Lois M., 894  
 Joyce, Gayle H., 547  
 Judkins, P. W., 38  
 Jurd, L., 799
- Kalter, S. S., 382  
 Kaplan, M. M., 914  
 Kato, Jyoji, 699/758  
 Kaufman, J. E., 1113  
 Kaufman, Leo, 301, 490  
 Kawakami, Y., 98  
 Kemper, D., 734  
 Kerr, T. J., 1160  
 King, A. D., Jr., 799  
 Kirsch, Edwin J., 1033  
 Kirschstein, Ruth L., 675, 1001  
 Kissling, Robert E., 1037  
 Kisumi, Masahiko, 699/758  
 Klein, Marilyn M., 276  
 Klingeborn, B., 1121  
 Kloos, W. E., 326  
 Ko, H. L., 207
- KO Swan Djen, 976  
 Koehler, P. E., 656, 852  
 Koenigs, J. W., 835  
 Koft, B. W., 407  
 Kominos, Spyros D., 309  
 Komorowski, Richard A., 500  
 Kono, Reisaku, 203  
 Kory, R. C., 141  
 Kovalchik, Michael T., 986  
 Kraus, Stephen J., 986  
 Kraychy, Stephen, 72  
 Kreitzer, Madeleine J., 62  
 Krogsgaard-Jensen, A., 553  
 Krumbiegel, Edward R., 750  
 Kunin, Calvin M., 919  
 Kunkle, George A., 427  
 Kunz, Lawrence J., 837  
 Kwok, Yung-Yuan, 268
- Lachica, R. Victor F., 168, 994  
 Lafferty, Eugene, 1140  
 Lahav, N., 870  
 Lambe, Dwight W., Jr., 377  
 Lambert, M. A., 889  
 Landon, John, 675  
 Larkin, John M., 1031  
 Lavigne, Michael E., 623  
 LeBreton, Ernest, 814  
 LeBuis, Donald A., 972  
 Lechtman, Max D., 155  
 Lee, J. S., 11, 166  
 Lee, Yhu-Hsiung, 824  
 Leggo, Janet H., 819  
 Lennette, Edwin H., 54  
 Libman, G., 662  
 Litsky, Warren, 571  
 Liu, F. S., 667  
 Loh, Philip C., 214  
 Lonsane, B. K., 161  
 Lopez, Rubens, 211  
 Lorenz, John R., 972  
 Love, B. E., 796  
 Lowenthal, Joseph P., 104, 841, 951  
 Luedemann, George M., 814  
 Luk, Daniel, 791
- McCalla, T. M., 810  
 McCormack, William M., 824  
 Macdonald, K. D., 990  
 McKay, L. L., 1090  
 McLaughlin, David W., 490  
 McManus, Albert T., 654  
 Macmillan, Bruce G., 509  
 McQuilkin, W. T., 123  
 McWhorter, Alma C., 953  
 Main, C. E., 193  
 Marker, Stephen C., 368  
 Marquardt, W. W., 942  
 Marraro, Robert V., 1023  
 Marshall, John D., Jr., 721  
 Marshall, Monica J., 765  
 Marscheck, William J., 72  
 Marth, E. H., 833



- Martignoni, M. E., 923  
 Martin, William J., 298  
 Mason, Richard A., 908  
 Mateles, R. I., 135  
 Matelová, V., 669  
 Matoušková, J., 669  
 Matsen, John M., 285, 421, 592  
 Mattman, Lida H., 262  
 Mauney, Charles U., 1023  
 Mazzone, H. M., 923  
 Melnick, Joseph L., 476, 740  
 Meronuck, R. A., 177, 613  
 Merrikin, D. J., 164  
 Metcalf, Theodore G., 880  
 Meyer, R. C., 180, 1167  
 Mielke, L. N., 810  
 Mikami, Yuzuru, 402  
 Miller, Lawrence G., 427  
 Miller, Sol, 481  
 Minor, T. E., 833  
 Minowada, J., 145  
 Miranda, Florencio, 170, 1073  
 Mirocha, C. J., 202, 613  
 Mitchen, J. R., 145  
 Mizrahi, A., 145  
 Moore, G. E., 145  
 Moore, Jack H., 1067  
 Morita, Richard Y., 341  
 Morton, Harry E., 725  
 Moss, C. Wayne, 889  
 Moyer, Patricia P., 628  
 Muir, Robert D., 72  
 Murphy, Richard A., 1170  
 Myers, Donald M., 894  
 Myers, Martin G., 946  
  
 Nagel, Janice G., 837  
 Naghschi, J., 578, 688  
 Naqi, S. A., 903  
 Nathan, Paul, 509  
 Neals, Pierrette, 1053  
 Nelson, G. H., 177, 202  
 Ng, Henry, 1153  
 Nickelson, R., 26, 34, 38  
  
 O'Brien, Thomas C., 908  
 Olsen, R. A., 679  
  
 Pace, Paul J., 750  
 Padron, A. P., 1107  
 Page, Leslie A., 770  
 Palmer, Amos, 675  
 Park, Hyan C., 316  
 Pascale, Andrea, 565  
 Patrick, Thomas E., 796  
 Paul, Bimla, 770  
 Pavlova, Maria T., 571  
 Peckinpauagh, R. O., 141  
 Pedersen, Anders N., 17  
 Pedersen, H. J., 141  
 Petersen, N. J., 863  
 Peterson, R. E., 671  
 Petriciani, John C., 1001  
 Phillips, John C., 1140  
  
 Pine, Leo, 236, 250  
 Plapp, R., 664  
 Plourde, Rosaire, 601  
 Pohlod, Donald J., 262  
 Poincelot, Raymond P., 875  
 Presnell, Maynard W., 521  
 Price, W. R., 679  
 Pulverer, G., 207  
  
 Qadri, S. M. Hussain, 704  
 Quan, A. L., 123  
 Quast, J. F., 200  
  
 Rangan, S. R., S., 628  
 Ray, B., 803  
 Raymond, Ella A., 4  
 Reamer, R. H., 78  
 Reznikov, M., 819  
 Rhoades, H. E., 1167  
 Richard, J. L., 586  
 Riemann, Hans P., 994  
 Riley, R. L., 1113  
 Robinson, David M., 104, 654  
 Roderick, W. R., 113, 117  
 Rogers, Robert R., 423  
 Rosen, Ira G., 649  
 Rosenbaum, M. J., 141  
 Rosenkovitch, E., 232  
 Roskey, C. T., 683  
 Ross, G. W., 765  
 Rottm, S., 659  
 Rowley, D. B., 734  
 Roy, Jacques J., 17  
 Rubio, Nazario, 211  
 Rudderaman, Randal, 649  
 Rueter, A., 113  
 Russell, Harold 714  
 Rust, James H., Jr., 721  
 Ryan, Joyce A., 592  
  
 Sansing, G. A., 433  
 Sattar, Syed A., 1053  
 Saymen, Dennis G., 509  
 Schafer, Thomas W., 565  
 Schleicher, J. B., 113, 117  
 Schmidt, Nathalie J., 54, 471  
 Serafini, Angela, 66  
 Sevoian, Martin, 449  
 Shabo, Alan L., 1001  
 Sharpe, M. Elisabeth, 389  
 Shimonaski, Gerard, 565  
 Shipkowitz, N. L., 117  
 Shipman, Charles, Jr., 188  
 Siegesmund, K. A., 141  
 Simmons, E. Ruth, 515  
 Simon, J., 1167  
 Singer, Stanley H., 675  
 Singh, H. D., 161  
 Smalley, E. B., 1029  
 Smith, David F., 188  
 Smith, David W., 595  
 Smith, Rodney F., 293, 423  
 Sobers, E. K., 313  
 Sobsey, Mark D., 623  
  
 Solberg, Myron, 429  
 Sottong, P., 1010  
 Spaulding, P. L., 966  
 Speck, M. L., 21  
 Standing, C. N., 354  
 Stanley, W. L., 799  
 Steele, J. A., 613  
 Stemper, Joanne E., 421  
 Stevenson, Kenneth E., 316  
 Stewart, Phyllis, 377  
 Stickle, David, 490  
 Stolzenberg, Rosa L., 745  
 Striker, Robert L., Jr., 780  
 Strong, F. M., 1029  
 Sukatsch, Dieter A., 543  
 Sullivan, E. J., 141  
 Sullivan, N. M., 1101  
 Surkiewicz, Bernard F., 515  
 Sutic, Marija, 656  
 Sutter, Vera L., 268, 1101  
 Synek, E. J., 1053  
  
 Tang, Chung-Shih, 1145  
 Tauraso, Nicola M., 908, 946  
 Terry, C. S., 164  
 Thomas, J., 8  
 Thomas, J. I., 123  
 Thomas, Myrtle L., 714  
 Tilbury, R. H., 389  
 Timchak, Robert L., 841  
 Todd, R. L., 1160  
 Toplin, I., 1010  
 Traub, Walter H., 4, 979, 982  
 Travis, T. A., 810  
 Trimmer, Roy W., 908  
 Trouwborst, T., 938  
 Trujillo, Ralph, 618  
 Tsuchiya, H. M., 354  
 Tu, C. M., 398  
 Tull, A. H., 826  
 Tunstall, Lucille, 262  
 Turner, Willie, 200, 372  
 Twedt, R. M., 966  
  
 Unz, Richard F., 524  
  
 Valerio, Marion G., 675  
 Vanderzant, C., 26, 34, 38  
 Van Leeuwen, W. J., 1172  
 Van Zwieten, Matthew J., 1015  
 Varela-Diaz, Victor, 894  
 Vasconcelos, G. J., 11  
 Vaughn, Reese H., 316  
 Viehweger, C., 1073  
 von Heyden, H. W., 145  
  
 Walby, Judith K., 1027  
 Walker, Homer W., 196  
 Wallis, Craig, 476, 740  
 Wallnöfer, P. R., 664  
 Warfield, Donna T., 360  
 Warrington, R. E., 98  
 Washington, John A., II, 298, 956

Washington, Louis, 108  
Waters, John R., 198  
Webb, Robert B., 972  
Weber, Joseph, 1025  
Wei, Ru-Dong, 1029  
Westaway, E. G., 158  
Westlake, D. W. S., 1082  
Westwood, J. C. N., 1053  
White, Arthur, 951  
Whittemore, A. D., 931  
Wiczynski, Leokadia, 170, 1073  
Wiktor, T. J., 914

Williams, J. E., 931  
Williams, Phletus P., 745  
Williams, Robert P., 704  
Wilson, Frederic H., 661  
Wisniewski, Henry J., 750  
Wistreich, George A., 155  
Witter, R. L., 505  
Wodzinski, Richard S., 1077  
Wolf, Robert H., 444  
Wong, Mae Cheong, 628  
Woodard, J. R., Jr., 21  
Woodburn, Margy, 321

Woods, Wilna A., 372  
Woodward, Martin R., 829  
Wu, C. M., 852  
Wyche, R. C., 796  
Wyshak, G., 784

Yu, Pauline K. W., 298

Zajic, J. E., 667  
Ziegler, Donald W., 1060  
Ziprin, Richard, 196  
Zottola, E. A., 1090

# SUBJECT INDEX

## VOLUME 23

- Acetyleneimine
  - inactivation of rabies virus, 914
- Actidione
  - with peptonized milk agar, 1031
- Actinobacillus actinomycetem-comitans*
  - serological studies, 207
- Actinobolin
  - periodontal disease, 88
- Adenoviruses
  - electron microscope methods for identification, 141
  - isolation in micro tissue cultures, 141
- Adenovirus titration, 1025
- Aerobiology
  - B. stearothermophilus* spores, 1053
- Aerosols
  - phage T<sub>1</sub> inactivation, 938
- Aerosol survival
  - influence of relative humidity, 1
  - P. tularensis*, 1
- Aflatoxin production
  - by molds from country cured hams, 656
- Agar block technique
  - for mycoplasma identification, 1097
- Agar dishes
  - tray-rack, 829
- Agar media
  - automated device for preparation, 662
- Agglutinin detection
  - microantiglobulin test for, 931
- Airborne organisms
  - effect of humidity, 1113
  - UV disinfection, 1113
- Air contamination
  - by drugs, 1149
  - method for detecting, 1149
- Air filters
  - efficiency against Marek's disease virus
- Air sampler
  - large volume, 1140
- Aldehydes
  - antiviral activity against vaccinia virus, 232
- Alkyl benzene sulfonate
  - degradation by *Pseudomonas* sp., 407
- Alternaria alternata*
  - production of tenuazonic acid, 613
- Alternaria longipes*
  - pathogenicity to tobacco leaves and toxicity to chicks, 313
- Amino acid pools
  - analysis in fungal mycelia, 349
- Ammonium
  - soil water content, 810
- Amphotericin B
  - growth inhibition of mycoplasmas, 659
- Anaerobic bacteria
  - standardized antimicrobial disc susceptibility test, 269
- Anaphylactic reactions
  - preventive measures, 1149
- Andrewes
  - in *S. enteritidis*, 953
  - phase variation, 953
- Antibiotics
  - actinobolin, 88
  - gentamicin, 565
  - tobramycin and gentamycin sulfate, 4
- Antibody response
  - to 17D vaccine, 908
- Antigenicity
  - of phenol and EDTA complexes in *S. enteritidis*, 651
- Antigenic relationships
  - V. parahaemolyticus* strains, 966
- Antigens
  - of *Brucella* sp., 894
- Antiglobulin test
  - S. typhimurium*, 931
- Antihyaluronidase test
  - for microtitration, 1153
- Anti-immunoglobulin G
  - incorporation into hemagglutination-inhibition test for influenza, 485
- Antimicrobial protection
  - dates, 799
- Antineuraminidase antibody
  - reproducibility of neuraminidase inhibition test, 827
- Antisera
  - streptococcal, 1047
- Aqueous formaldehyde
  - sporostatic and sporocidal effects, 618
- Arboviruses
  - accelerated identification, 437
  - volume production of reference seed virus and immune ascitic fluids, 382
- Arginine metabolism
  - catabolic products, 889
- Aromatic compounds
  - utilization by *Zooglea*, 524
- Aromatic hydrocarbons
  - utilization in dissolved state, 1077
- Arsenic compounds
  - suppression of inhibitory effects by phosphate, 46
  - variation in toxicity to microorganisms, 46
- Ascospore formation
  - method for induction in yeasts, 161
- L-Asparaginase
  - synthesis by *E. aroideae*, 667
  - factors influencing production by *E. aroideae*, 671
- L-Asparaginase production
  - by *S. griseus*, 1163
- Aspartic acid
  - role in proline production, 699

- Aspergillosis**  
—serodiagnosis by immunodiffusion test, 301  
*Aspergillus ochraceus*  
—4-hydroxymellein production by, 1067  
—mellein production by, 1067  
—production of metabolite ochratoxin A, 433  
**Australia antigen**  
—assay methods, 1037  
**Automated device**  
—for agar media preparation, 662  
**Automated slide staining machine**, 17  
**Auxotab Enteric 1 System**  
—identification of *Enterobacteriaceae*  
**Avian infectious bronchitis virus**  
—stabilization by magnesium sulfate, 281
- Bacillus stearothermophilus*  
—spores, 1053  
*Bacillus stearothermophilus* NCA 1518  
—variants, 693  
*Bacillus subtilis*  
—effect of NO<sub>2</sub> on airborne spores, 481  
—sporostatic and sporocidal effects of aqueous formaldehyde, 618  
*Bacillus subtilis* spores  
—effect of monosodium *n*-alkylsalicylates, 8  
*Bacillus subtilis* var. *niger*  
—dry heat inactivation of spores, 1125  
**Bacteremia**  
—after genitourinary manipulation, 1101  
**Bacteremia detection**  
—commercial media for, 956  
**Bacteria**  
—fresh pork sausage, 515  
—production from hexadecane at high temperatures, 543  
—quantitation in infected surface wounds, 509  
**Bacterial detection**  
—sensitivity of <sup>14</sup>CO<sub>2</sub> radiometric method, 198  
**Bacterial growth rate**  
—effect of herbicides, 431  
**Bactericidal activity**  
—pentamycin and carbenicillin, 775  
**Bacteriocin production**  
—method of typing *S. marcescens*, 218  
**Bacteriocins**  
—pyocin 78-C2, 164  
**Bacteriocin sensitivity**  
—method of typing *S. marcescens*, 226  
**Bacteriocin sensitivity patterns**, 982  
**Bacteriocin typing**  
—*S. marcescens*, 979, 982  
**Bacteriophage**  
—uptake by edible crabs, 1073  
**Bacteriophage λ**  
—large-scale production, 791  
**Bacteriophage T<sub>1</sub>**  
—in aerosols, 938  
**Bacteriophage typing**  
—staphylococcal, 1023  
**Bacteriuria**  
—method for defining, 919  
*Bacteroides fragilis*  
—susceptibility to tetracycline, 268
- Batch-culture transients**  
—in *E. coli* for two substrate systems, 354  
**Benzo(b)thien-4-yl methylcarbamate (Mobam)**  
—ruminal bacterial degradation, 745  
**Benzyl isothiocyanate**  
—bacterial degradation, 1145  
**Bergapten**  
—isolation from celery, 852  
**Beta-hemolytic streptococci**  
—grouping by rapid extraction method with Pronase B, 285  
**Bibenzyl**  
—utilization of, 1077  
**Biotyping**  
—new technique, 1172  
**Biphasic spore production**  
—*C. botulinum*, 734  
**bis-Benzimidazole**  
—antiviral activity in chimpanzees, 117  
—antiviral activity in tissue culture systems, 113  
**Blood culture**  
—Stemfil lysis-filtration procedure, 500  
**Bluecomb disease agent**, 903  
*Bordetella pertussis*  
—long-term preservation, 186  
*Brucella ovis* infections, 894  
*Brucella* species  
—diagnosis of infections, 894
- Candidiasis**  
—latex agglutination and immunodiffusion tests for diagnosis, 490  
**Capillary tube**  
—rapid method for detecting penicillin resistance in *S. aureus*, 649  
**Carbenicillin**  
—bactericidal activity, 775  
**Carbofuran**  
—effect on microbial activity in soil, 398  
**Carbohydrates**  
—effect on *Salmonella* agglutination with polyvalent H antiserum, 62  
<sup>14</sup>CO<sub>2</sub>  
—measurement of uptake by soil microorganisms, 595  
<sup>14</sup>CO<sub>2</sub> radiometric method  
—sensitivity for bacterial detection, 198  
**Catabolic products**  
—of arginine metabolism, 889  
**Celery**  
—infected with *S. sclerotiorum*, 852  
**Cellulolytic activity**  
—dye release assay, 875  
**Cellulose membranes**  
—use in concentrating enterovirus from water, 476  
**Cell-wall-deficient bacteria**  
—intra- and extraerythrocytic presence in septicemia, 262  
**Cheese starters**  
—susceptibility to antibiotics, 960  
**Chicken erythrocytes**  
—hemolytic interaction with Newcastle disease virus, 454, 461

- Chickens
  - Marek's disease-infected, 942
  - type II (Marek's) leukosis in S- and K-line, 449
- Chikungunya vaccines
  - comparative immunogenicities, 951
- Chlamydial antibodies
  - detection, 770
- Chlamydia trachomatis*
  - growth in irradiated McCoy cells, 123
- Chromogenicity
  - of *Streptomyces*, 402
- Clay minerals
  - survival of *K. aerogenes*, 870
- Clostridium botulinum*
  - contamination of Eskimo foods in Northwestern Alaska, 427
  - heat destruction of spores, 750
  - spore production, 734
- Clostridium perfringens* enterotoxin
  - dog as an assay organism, 197
- Clostridium perfringens* spores
  - large-quantity, vegetative cell-free production, 429
- Coagulase activity
  - staphylococci, 725
- Colorimetric assay
  - for cellulolytic activity, 875
- Comparative resistance
  - P. aeruginosa*, 863
- Complement fixation
  - in diagnosis of *Brucella* infections, 894
- Conidia of *Penicillium chrysogenum*
  - storage of, 990
- Contamination
  - effect of flaming cotton-plugged tubes on media, 441
- Continuous-culture transients
  - in *E. coli* for two substrate systems, 354
- Corynebacteriaceae*
  - from pond-reared shrimp and pond water, 38
  - numerical taxonomy, 38
- Country cured hams
  - identification and aflatoxin production of molds from, 656
- Coupled-enzyme assay
  - for neuraminidase, 1060
- Coziella burnetii*
  - Genetron extraction, 841
- Coziella burnetii* rickettsia
  - large-volume purification, 1015
- Crabs
  - uptake of phage, 1073
- Crassodrea gigas*
  - microbial contamination, 11
- Crude oil
  - biodegradability, 1082
- Cultivation of leptospires
  - fatty acid requirements, 1027
- Culture technique
  - cellophane-over-agar, 833
- Culture transfers
  - media contamination, 441
- Cytomegaloviruses
  - microculture plaque assay, 780
- Cytopathogenic test
  - for feline leukemia virus, 628
- Dasanit
  - effect on microbial activity in soil, 398
- Dates
  - antimicrobial protection, 799
- D-D
  - effect on microbial activity in soil, 398
- Degradation
  - of benzyl isothionate, 1145
- Density zonal centrifugation
  - for large-volume purification, 1015
- Deoxyribonuclease activity
  - staphylococci, 725
- $\lambda$  Deoxyribonucleic acid
  - large-scale production, 791
- Deoxyribonucleic acid polymerase
  - levels during herpes simplex virus infection of human lymphoid cells, 145
- Dip-inoculum method
  - for urine culture, 919
- Direct staining method
  - identification of group D streptococci, 571
- Disinfectant testing
  - in hospital environments, 863
- Disposal of paper, 875
- Dithiothreitol
  - equine abortion virus susceptibility to, 1121
- Dogs
  - assay organisms for *C. perfringens* enterotoxin, 196
- Double diffusion in gel
  - detection of antibodies, 770
- Drugs
  - air contamination by, 1149
- Dry heat sterilization
  - of *B. subtilis* spores, 1125
- Dual media
  - for urine culture, 919
- Edible crabs
  - uptake of phage, 1073
- Electron microscope
  - method of identifying adenoviruses isolated in micro tissue cultures, 141
- Electron microscopy
  - viewing of soil microorganisms, 637
- Electrostatic air sampler
  - for detecting drugs in air, 1149
- Endotoxin
  - purification by membrane partition chromatography, 211
- Enterobacter cloacae*
  - benzyl degradation by, 1145
  - $\beta$ -lactamase, 765
- Enterobacteriaceae*
  - identification by Auxotab Enteric 1 System, 299
  - identification, 710
- Enterobacteriaceae* identification
  - numerical diagnostic key, 108

- Enterococci  
—present in bacteremia, 1101  
Enterotoxin  
—latex agglutination technique, 833  
Enterotoxin B  
—detection on cell surface of *S. aureus*, 559  
Enterotoxin contamination in foods  
—limiting environmental factors, 994  
Enterovirus  
—concentration on cellulose membranes, 476  
Environmental health  
—virus in water, 880  
Enzyme activities  
—staphylococci, 725  
Epidemiological differentiation  
—typing by bacteriocin production, 218  
—typing by bacteriocin sensitivity, 226  
Epoxide cleavage  
—by *F. solani*, 601  
Equine abortion virus  
—strain differences, 1121  
—susceptibility to dithiothreitol, 1121  
*Ervinia aroideae*  
—synthesis of L-asparaginase, 667  
—factors influencing L-asparaginase production, 671  
Erythrocytes  
—detection of cell-wall-deficient, parasitic bacteria, 262  
*Escherichia coli*  
—batch-culture transients for two substrate systems, 354  
—continuous-culture transients for two substrate systems, 354  
—polyvalent, streptomycin-dependent vaccine, 444  
—rapid recovery from estuarine water, 521  
*Escherichia coli* ATCC 4352 and ATCC 11229  
—corrected identification, 661  
*Escherichia coli* infections  
—model for study, 1167  
Eskimo foods  
—origin of *C. botulinum* contamination, 427  
Ester synthesis  
—by *Z. ramigera* 115 in presence of ethanol, 547  
Estuarine water  
—rapid recovery of *E. coli* from, 521  
Ethylenediaminetetraacetate complexes  
—antigenicity of cell wall extracts of *S. enteritidis*, 651  
Eutrophication  
—significance of vitamin B<sub>12</sub>, 341  
  
Fatty acid requirements  
—for leptospires, 1027  
Feline leukemia virus  
—cytopathogenic test for infection, 628  
Fermented glutinous rice  
—tapé from, 976  
Fermenting yeasts  
—spoilage of olives, 316  
Flaming  
—effect on contamination of media, 441  
Fluorescent antibody  
—induced by rubella virus, 66  
Fluorescent-antibody techniques  
—identification of group D streptococci, 571  
Fluorochrome staining  
—detection of cell-wall-deficient bacteria in erythrocytes, 262  
Food samples  
—*Salmonella* testing, 679  
Foot-and-mouth disease virus  
—typing by passive hemagglutination-inhibition test, 98  
Formaldehyde  
—aqueous, 618  
Fraction I antigen  
—preparation and experimental data, 721  
Freeze-injury repair  
—*S. anatum*, 803  
Fungal mycelia  
—analysis of free amino acid pools, 349  
Fungi  
—cellulolytic activity, 875  
Fungus cultures  
—inoculation technique, 174  
Fusaria  
—T-2 toxins, 1165  
*Fusarium roseum*  
—effect on young swine when consumed in corn rations, 202  
*Fusarium solani* spores  
—reduction of 20-carbonyl group of C-21 steroids, 601  
—side-chain degradation, epoxide cleavage, substrate specificity, 601  
*Fusarium tricinctum*  
—effect on turkey poults when consumed in corn rations, 177  
  
 $\beta$ -galactosidase  
—stimulation of lactic streptococci in milk, 81  
Gas chromatography  
—metabolites from arginine, 889  
Gel diffusion  
—in diagnosis of *Brucella* infections, 894  
Genetron extraction  
—for *Coxiella burnetii*, 841  
Genital mycoplasmas  
—isolation, 824  
Genitourinary tract manipulation  
—bacteremia after, 1101  
Gentamicin  
—bactericidal activity, 775  
—use in virology and tissue culture, 565  
Gentamicin sulfate  
—in vitro activity compared with tobramycin, 4  
Gnotobiotic swine  
—susceptibility to *E. coli*, 1167  
Gram stain  
—automated slide staining machine, 17  
Group B coxsackieviruses  
—identification by immunofluorescence staining, 54  
Group D streptococci  
—direct staining method for identification, 571  
—speciation, 1131  
Growth precipitation test



- identification and classification of mycoplasma, 553
- Guaroa virus
  - co-infection with murine sarcoma virus, 372
- Hams
  - molds from country cured, 656
- Hamster system
  - ancogenic products, 675
- H antigen
  - production by *H. capsulatum*, 236, 250
  - effect of physical factors and medium on production in *H. capsulatum*, 250
- Heat-injured bacteria
  - revival and isolation, 857
- Heat resistance
  - of salmonellae in concentrated milk, 415
- Heliothis zea*
  - nucleopolyhedrosis virus inclusion bodies, 923
- Helminthosporium maydis*
  - toxicity, 586
- Hemagglutinating antigen
  - detection of FR-I antibody, 721
- Hemagglutination inhibition
  - influenza test, 485
  - serogrouping of *N. meningitidis*, 289
  - test for typing foot-and-mouth disease virus, 98
- Hemagglutination-inhibition test
  - rubella detection using human group O erythrocytes, 471
- Hemagglutinins
  - rapid preparation from infected cell culture fluids, 158
- Hemerocampa pseudotsugata*
  - nucleopolyhedrosis virus inclusion bodies, 923
- Hemolysis
  - determining factors of interaction of Newcastle disease virus and chicken erythrocytes, 461
  - procedure to determine interaction of Newcastle disease virus and chicken erythrocytes, 454
- Hepatitis-associated antigen
  - assay methods, 1037
  - committee report, 1037
- Herbicides
  - effect on bacterial growth rates, 431
  - linuron degradation product, 664
- Herpes simplex virus
  - growth in human lymphoid cells
- Herpes zoster virus
  - ultrastructural identification, 1001
- Hexadecane
  - bacteria production at high temperatures, 543
- High-intensity lamp
  - for biological research, 972
- Histoplasma capsulatum*
  - production of H and M antigens, 236, 250
  - effect of physical factors and medium composition on antigen production, 250
- Histoplasmin
  - production by shake culture procedure, 236
- Human group O erythrocytes
  - use in hemagglutination-inhibition test for rubella, 471
- Humic acid
  - survival of *K. aerogenes*, 870
- Humidity
  - effect on inactivation of spores, 1125
- Hyaluronidase
  - antibody titer to, 1153
- Hydrogen peroxide production
  - by salmonellae, 1107
  - selective medium, 1107
- 4-Hydroxymellein production
  - by *A. ochraceus*, 1067
- Immune ascitic fluids
  - volume production for arboviruses, 382
- Immunization
  - oral, streptomycin-dependent *E. coli* vaccine, 444
- Immunodiffusion test
  - detection of type II leukosis infection in chickens, 449
  - diagnosis of systemic candidiasis, 490
  - serodiagnosis of aspergillosis, 301
- Immunofluorescence
  - failure to detect cell-associated enterotoxin B in *S. aureus*, 559
  - technique for detecting salmonellae in nonfat dry milk, 78
- Immunofluorescence staining
  - group B coxsackieviruses, 54
- Immunofluorescent cell count
  - assay of vaccinia virus, 214
- Immunoglobulin G
  - solid-phase radioimmunoassay, 360
- Immunoperoxidase
  - to localize herpes zoster virus, 1001
  - to localize simian virus 40, 1000
- Inactivation of bacteriophage
  - in aerosols, 938
- Inactivated rabies virus
  - immunogenicity, 914
- Inclusion bodies
  - enumeration for virus titration, 1025
- Incubation techniques
  - tray-rack method, 829
- India ink
  - in antihyaluronidase test, 1153
- Indirect hemagglutination test
  - detection of type II leukosis infection in chickens, 449
- Indole-positive *P. mirabilis*
  - characterization of strains, 592
- Indole test reaction
  - inhibition by sodium nitrite, 423
- Industrial wastewater
  - biological treatment, 1033
- Infectious enteritis
  - in turkeys, 903
  - serologic response, 903
- Influenza
  - anti-IgG hemagglutination-inhibition test, 485
- Influenza antibody
  - assay by solid-phase radioimmunoassay, 360
- Influenza virus
  - concentration, 740
  - purification, 740
- Influenza virus vaccines

- identification of components, 946
- polyvalent inactivated, 946
- Inoculation
  - technique for fungus cultures, 174
- Insect control, 923
- Intermittent feeding
  - in penicillin biosynthesis, 669
- Ionizing irradiation
  - inactivation of rabies virus, 914
  - induction of *C. trachomatis*-susceptible, giant McCoy cells, 123
- Isolation efficiency
  - Salmonella*, 688
- Kaolin
  - effect on serum immunoglobulins, 203
- Klebsiella aerogenes*
  - $\beta$ -lactamase, 765
  - survival after UV, 870
- Klebsiella pneumoniae*
  - present in bacteremia, 1101
- K-series centrifuge
  - for nucleopolyhedrosis virus inclusion bodies, 923
- Kurthia cateniforma*
  - proline fermentation, 758
  - proline production, 699
- $\beta$ -Lactamases
  - substrate specificities, 765
- Lactic streptococci
  - lactose metabolism, 1090
  - stimulation by  $\beta$ -galactosidase, 21
- Lactobacilli
  - in sourdough leavening, 1153
  - slime-forming, heterofermentative species, 389
- Lactose-negative mutants
  - of *S. lactis*, 1090
- Lamp
  - high-intensity, 972
- Laparotomy
  - infection model for evaluation of topical antimicrobials, 130
- Large-volume purification
  - by zonal centrifugation, 1010, 1015
- Latex agglutination technique
  - enterotoxin determination, 833
- Latex agglutination test
  - diagnosis to systemic candidiasis, 490
- Leptospire
  - fatty acid requirements, 1027
- Light source
  - high-intensity, 972
- Linuron
  - identification of *N,O*-demethylhydroxylamine as degradation product, 664
- Liquid nitrogen
  - storage of conidia of *P. chrysogenum* in, 990
- Localization in culture
  - by immunoperoxidase, 1001
  - herpes zoster virus, 1001
  - simian virus 40, 1001
- Lymphoid cells
  - growth of herpes simplex virus in humans, 145
- Lysogenic *Escherichia coli*
  - prophage induction with *N*-nitroso compounds, 91
- McCoy cells
  - effect of irradiation on susceptibility to *C. trachomatis*
  - susceptibility to *C. trachomatis*, 123
- Magnesium sulfate
  - stabilization of avian infectious bronchitis virus, 281
- Maintenance and storage of stock cultures
  - simplified method, 837
- M antigen
  - production by *H. capsulatum*, 236, 250
  - effect of physical factors and medium on production in *H. capsulatum*, 250
- Marek's disease antigen
  - detection, 942
- Marek's disease virus
  - efficiency of commercial air filters against, 505
- Meat-and-bone meal
  - Salmonella* recovery from, 579
  - effect of type of enrichment and duration of incubation on *Salmonella* recovery, 578
- Media contamination
  - effect of flaming cotton-plugged tubes, 441
- Melanin
  - detection in *Streptomyces*, 402
- Mellein production
  - by *A. ochraceus*, 1067
- Membrane-cartridge filters
  - for recovery of virus from water, 880
- Membrane filters
  - comparison, 1160
- Membrane filter technique
  - recovery of bacteria, 857
- Membrane partition chromatography
  - purification of *P. aeruginosa* endotoxin, 211
- Metabolism of pentachlorophenol
  - axenic bacterial culture, 1033
  - use in wastewater treatment, 1033
- Metachromatic agar-diffusion
  - microslide technique for detecting staphylococcal nuclease in food, 168
- Microantiglobulin test
  - for *S. typhimurium* agglutinin detection, 931
- Microbial biomass
  - electron microscopy, 1160
- Microbial contamination
  - Pacific oysters subjected to UV-treated seawater, 11
- Microbial traces
  - reduction of risk, 1053
- Microbiological vitamin assays
  - semiautomated method, 531
- Micrococci
  - differentiation from staphylococci by shake culture method, 326
- Microculture plaque assay
  - cytomegaloviruses, 780
- Microflora
  - observation by transmission electron microscope, 637

- Micro tissue cultures  
 —isolation of adenoviruses, 141  
 Microtiter plate agglutination test  
 —for *Salmonella* antibodies in human sera, 425  
 Microtitration technique  
 —for antihyaluronidase test, 1153  
 Milk  
 —acid production by lactic streptococci, 21  
 —heat resistance of salmonellae in concentrated milk, 415  
 Mill for nail specimens  
 —design and construction, 814  
 Molds  
 —from country cured hams, 656  
 Monkey kidney monolayers  
 —Chikungunya vaccines propagated in, 951  
 Monkeys  
 —response to 17D vaccine, 908  
 Monosodium *n*-alkylsalicylates  
 —effect on *B. subtilis* spores, 8  
 Morphological mutants  
 —*B. stearotheophilus* NCA 1518, 693  
 Mouse potency assay  
 —for Western equine encephalomyelitis vaccines, 104  
 Murine leukemia virus  
 —semi-micro XC cell assay technique, 200  
 Murine sarcoma virus  
 —co-infection with guarovirus, 372  
*Mycobacterium tuberculosis*  
 —sterilization and optimal staining, 826  
 Mycoplasmas  
 —differentiation of sterol-requiring and non-requiring, 659  
 —growth precipitation as a serodiagnostic method, 553  
 —identification, 1097  
 —isolation, 824  
 Mycotoxins  
 —elaboration by fusaria, 1165  
 —trichotoxin A, 183  
 Myxovirus neuraminidase  
 —assay for, 1060  
  
 Naphthalene  
 —utilization of, 1077  
*Neisseria gonorrhoeae*  
 —colonial morphology, 986  
 —rectal isolates, 986  
*Neisseria meningitidis*  
 —serogrouping by hemagglutination inhibition, 289  
 Nematocides  
 —effect on microbial activity in soil, 398  
*Neodiprion sertifer*  
 —nucleopolyhedrosis virus inclusion bodies, 923  
 Neomycin sulfate  
 —decontamination of porcine skin for xenographs, 293  
 Neuraminidase inhibition test  
 —reproducibility, 827  
 Neuraminidase, viral, 1060  
 Newcastle disease virus  
 —hemolytic interaction with chicken erythrocytes, 454, 461  
 Nitrate  
 —soil water content, 810  
 Nitrogen  
 —soil water content, 810  
 Nitrogen dioxide  
 —effect on airborne *B. subtilis* spores, 481  
 —effect on airborne Venezuelan equine encephalomyelitis virus, 481  
*N*-nitroso compounds  
 —prophage induction in lysogenic *E. coli*, 91  
*N,O*-dimethylhydroxylamine  
 —microbial degradation product of linuron, 664  
 Nucleic acid enzymes  
 —reactions of nonfermentative, gram-negative bacteria, 276  
 Nucleopolyhedrosis virus inclusion bodies  
 —mass purification, 923  
  
 Ochratoxin A  
 —preparation from *A. ochraceus*, 433  
 Olives  
 —softening and gas pocket formation, 316  
 —spoilage by fermenting, pectolytic yeasts, 316  
 Oncogenicity  
 —enhancement through dual viral infection, 372  
 —hamster biological products, 675  
 Onychomycosis  
 —laboratory mill for nail specimens, 814  
 Oral vaccine  
 —streptomycin-dependent *E. coli* vaccine, 444  
 Ornithine decarboxylase  
 —detection, 710  
 Ornithine decarboxylase test  
 —rapid technique, 710  
 Oropharyngeal cultures, 846  
 Oxidized spermine  
 —antiviral activity against vaccinia virus, 232  
  
 Pacific oysters  
 —microbial flora, 11  
 Paratyphi A bioserotype  
 —*Salmonella enteritidis*, 953  
*Paria weirii*  
 —peroxidase source, 835  
*Pasteurella tularensis*  
 —aerosol survival, 1  
 —relative humidity influence on aerosol survival, 1  
 Pathogenicity  
 —relationship to toxicity of *A. longipes*, 313  
 Pectin  
 —fermentation by rumen bacteria, 332  
 Pectolytic yeasts  
 —spoilage of olives, 316  
 Penicillin biosynthesis  
 —new method of intermittent feeding, 669  
 Penicillin resistance  
 —rapid detection in *S. aureus*, 649  
 Penicillin yield  
 —after conidial transfer, 990  
*Penicillium chrysogenum* conidia  
 —storage in liquid nitrogen, 990

- Pentachlorophenol  
—metabolism of, 1033  
—resistance to microbial decomposition, 1033
- Peptonized milk  
—medium for counting soil bacteria, 1031
- Periodontal disease  
—actinobolin as antibiotic, 88
- Peroxidase source  
—*P. weirii*, 835
- Phage typing  
—*S. thompson*, 831
- Phenol complexes  
—antigenicity in cell wall extracts of *S. enteritidis*, 651
- Phosphate  
—suppression of inhibitory effects of arsenic compounds, 46
- Phosphorus-33  
—labelling of poliovirus, 623
- <sup>32</sup>P-labeled poliovirus  
—preparation, 623
- Photomicrography  
—interval scanning of microbial populations, 190
- Phytopathogenic bacteria  
—susceptibility to wheat purothionins, 998
- Phytopathogenic fungi  
—animal toxicity of, 193
- Plaque method  
—assay of vaccinia virus, 214
- Plastic paddle  
—new method for urine culture, 919
- Poliovirus  
—labeling with phosphorus-33, 623  
—uptake by West Coast shore crabs, 171
- Poliovirus from water, 880
- Polyelectrolytes  
—virus concentration and purification, 740
- Polyvalent H antiserum  
—agglutination affected by carbohydrates in growth medium, 63
- Polyvalent influenza virus vaccines  
—quantitation of components, 946
- Porcine skin  
—decontamination by neomycin sulfate for xenografts, 293
- Pork sausage  
—bacteriological survey, 515
- Portheia dispar*  
—nucleopolyhedrosis virus inclusion bodies, 923
- Potassium sorbate  
—antimicrobial agent, 799
- Poultry bruises  
—staphylococcal injection, 683
- Poultry carcasses  
—reduction of bacterial contamination, 796
- Precipitating antibodies  
—quantitative measurement, 1047
- Prodigiosin  
—biosynthesis, 704
- Proline  
—mechanism of production, 699
- L-Proline  
—effect of L-aspartic and L-glutamic acid, 758  
—production, 758
- Pronase B  
—rapid extraction method for grouping  $\beta$ -hemolytic streptococci, 285
- Prophage induction  
—in lysogenic *E. coli*, 91  
—with *N*-nitroso compounds and derivatives, 91
- Prophylaxis  
—is protected environments, 846
- $\beta$ -Propiolactone  
—inactivation of rabies virus, 914
- Protected environments, 846
- Proteus mirabilis*  
—indole-positive, 592
- Pseudomonad C*  
—new pseudomonad utilizing methanol for growth, 135
- Pseudomonas aeruginosa*  
—bactericidal activity, 775  
—Pseudose agar as an aid in identification, 377  
—purification of endotoxin, 211  
—resistance to disinfectants, 863  
—transmission in hospital, 309
- Pseudomonas sp.*  
—degradation of alkyl benzene sulfonate, 407
- Pseudose agar  
—identification of *P. aeruginosa*, 377
- Purification of tumor viruses  
—by zonal centrifugation, 1010
- Purified *Coxiella burnetii*  
—extraction method, 841
- Purothionins of wheat  
—susceptibility of phytopathogenic bacteria, 998
- Pyocin 78-C2  
—treatment of *P. aeruginosa* infection in mice, 164
- Quality control  
—methods of scalding poultry skin, 796  
—*Salmonella* testing, 679
- Quantal virus assays  
—tables for number of estimated particles, 784
- Quantitative comparison procedure  
—determination of hemolytic interaction of Newcastle disease virus and chicken erythrocytes, 454
- Quantitative methods  
—estimating number of organisms, 784
- Rabies virus  
—immunogenicity, 914
- Radial immunodiffusion  
—detection of Marek's disease antigen, 942
- Radial immunodiffusion, single, 1047
- Radioimmunoassay  
—solid-phase, 360
- Ragi  
—microorganisms from, 976
- Ram epididymitis  
—diagnosis, 894
- Recovery of bacteria  
—membrane filter technique, 857
- Rectal gonococci  
—colonial morphology, 986
- Relative humidity

- effect on inactivation, 1113
- effect on inactivation of spores, 1125
- Reference seed virus
  - volume production for arboviruses, 382
- Revived heat-injured bacteria, 857
- Rheumatic fever
  - diagnosis, 1153
- Rhinoviruses
  - inhibition by a bis-benzimidazole in chimpanzees, 117
  - inhibition by bis-benzimidazoles in tissue culture, 113
- Rubella
  - hemagglutination-inhibition test using human group O erythrocytes, 471
- Rubella fluorescent antibody
  - persistence in vaccinees and convalescents, 66
- Rumen bacteria
  - fermentation of pectin in intact forages, 332
- Ruminal bacteria
  - Mobam degradation, 745
- Saccharomyces exiguus*
  - relation to sourdough bacteria, 1153
- Salmonella anatum*
  - freeze-injury repair, 803
- Salmonella* antibodies
  - Microtiter plate agglutination test, 425
- Salmonellae*
  - heat resistance in concentrated milk, 415
  - H<sub>2</sub>S production by, 1107
  - recovery from meat-and-bone-meat, 578
  - testing of pooled broths, 679
- Salmonellae* detection
  - in nonfat dry milk
  - rapid immunofluorescence technique, 79
- Salmonella enteritidis*
  - antigenicity of phenol and EDTA complexes from cell wall, 651
  - bioserotype Paratyphi A, 953
  - phase variation of Andrewes, 953
- Salmonella* isolation
  - efficiency, 688
  - meat-and-bone meal, 688
- Salmonella* spp.
  - agglutination with polyvalent H antiserum, 62
- Salmonella thompson*
  - typing system, 831
- Salmonella typhimurium*
  - agglutinin detection, 931
  - biotyping technique, 1172
  - growth in skim milk concentrates, 82
- San Francisco sourdough
  - bacteria, 1153
- Sausage
  - bacteriological survey of production at Federally inspected plants, 515
- Scalders
  - comparison, 796
- Scanning electron microscopy
  - cells on different filters, 1160
- Sclerotinia sclerotiorum*
  - celery infected with, 852
- Scrubber
  - simple liquid, 1140
- Seawater
  - rapid recovery of *E. coli* from, 521
- Selective medium
  - for H<sub>2</sub>S production by salmonellae, 1107
- Semi-micro procedures
  - modification of XC cell assay for murine leukemia virus, 200
- Semiquantitative technique
  - for oropharyngeal cultures, 846
- Septicemia
  - detection of cell-wall-deficient forms in circulating erythrocytes, 262
- Serodiagnosis
  - immunodiffusion test for aspergillosis, 301
  - mycoplasma growth precipitation test, 553
- Serogrouping
  - identification of *N. meningitidis* by hemagglutination inhibition, 289
- Serologic response
  - to infectious enteritis agent, 903
- Serotype/-group
  - S. marcescens*, 979
- Serotyping
  - modification of Schaefer's procedure, 819
- Serratia marcescens*
  - airborne, 1113
  - bacteriocin typing of, 979, 982
  - clinical isolates, 982
  - epidemiological differentiation, 218, 226
  - inactivation, 1113
  - prodigiosin biosynthesis, 704
  - typing by bacteriocin production, 218
  - typing by bacteriocin sensitivity, 226
- Serum immunoglobulins
  - kaolin treatment, 203
- Shake culture procedure
  - production of histoplasmin, 236
- Shake cultures
  - use in semisolid thioglycolate medium in differentiating staphylococci from micrococci, 326
- Shrimp
  - Corynebacteriaceae from pond-reared specimens, 38
  - survival of *V. parahaemolyticus* in, 34
- Side-chain degradation
  - by *F. solani*, 601
- Simian virus 40
  - ultrastructural identification, 1001
- Simple liquid scrubber
  - description and evaluation, 1140
- Single radial immunodiffusion, 1047
- Skim milk
  - influence of concentration on *S. typhimurium* growth, 82
- Skin test
  - for T-2 toxin detection, 1029
- Sodium chloride
  - relationship of concentration to *V. parahaemolyticus* survival, 321
- Sodium nitrite
  - inhibition of indole test reaction, 423

- Soil  
—observation of microorganisms, 637
- Soil bacteria  
—enumeration of, 1031  
—medium for, 1031
- Soil microorganisms  
—measurement of  $^{14}\text{CO}_2$  uptake in situ, 595
- Soil water content  
—ammonium, nitrate, and nitrogen, 810
- Solid-phase radioimmunoassay  
—assay for influenza-specific immunoglobulin G, 1360
- Solid waste disposal, 875
- Sourdough bacteria  
—organic acid production by, 1153
- Speciation  
—of group D streptococci, 1131
- Spontaneous induction  
—*S. aureus*, 1023
- Spores  
—sporostatic and sporocidal properties of aqueous formaldehyde, 618
- Spores of *Bacillus subtilis*  
—dry heat sterilization, 1125
- Staphylococcal enterotoxin A  
—culture technique, 833
- Staphylococcal infection  
—poultry tissue, 683
- Staphylococcal nuclease  
—method for detection in food, 168
- Staphylococcal thermonuclease  
—tolerance to stress, 994
- Staphylococci  
—coagulase and deoxyribonuclease activities, 725  
—differentiation from micrococci by shake culture method, 326  
—enzyme activities, 725  
—grouping with *Pronase* B, 285  
—in porcine skin for xenografts, 293
- Staphylococcus aureus*  
—detection of enterotoxin B on cell surface, 559  
—rapid detection of penicillin resistance, 649  
—reproducible topical infection in rats, 130  
—spontaneous induction, 1023
- Steril lysis-filtration  
—blood culture procedure, 500
- Sterilization  
—of *B. subtilis* var. *niger* spores, 1125
- Steroids  
—reduction of 20-carbonyl group by *F. solani* spores, 601
- Sterols  
—degradation by *Mycobacterium* spp., 72  
—requirement in mycoplasmas, 659
- Stock cultures  
—maintenance and storage, 837
- Streptococcal grouping antisera  
—precipitable antibodies, 1047  
—single radial immunodiffusion, 1047
- Streptococcal nucleases  
—preparation, 368
- Streptococci  
—direct staining method for identification of group D, 571  
—from human sources, 1131
- Streptococcus lactis*  
—lactose-negative mutants, 1090
- Streptomyces*  
—chromogenicity, 402  
—detection of melanin formation by, 402
- Streptomyces griseus*  
—L-asparaginase production by, 1163
- Streptomycin detection, 960
- Streptomycin-dependent vaccine  
—oral immunization with *E. coli* serotypes, 444
- Substrate specificity  
—in 20-reductase system of *F. solani*, 601
- Substrate systems  
—batch- and continuous-culture growth in *E. coli*, 354
- Surface wound infection  
—method for quantitation of bacteria, 509
- Swine  
—responses after consuming *F. roseum*-invaded corn, 202
- Swinepox virus  
—adaptation to PK-15 cell line, 180
- Synthetic zeolite  
—disruption of chemically killed bacterial cells, 155
- Tapé fermentation, 976
- Tenuazonic acid  
—toxicity and production from *A. alternata*, 613
- Tetracycline  
—activity against *B. fragilis*, 268
- Thermonuclease  
—detection in *S. aureus*-contaminated food, 168
- Thin-layer chromatography  
—determination of nucleic acid enzyme reactions of bacteria, 276
- Thioglycolate medium  
—use in differentiation of staphylococci from micrococci, 326
- Thioglycollate-135C  
—bacteremia detection, 956  
—commercially available, 956
- Tissue homogenization  
—bacterial quantitation in surface wounds, 509
- Titration of adenovirus, 1025
- Tobramycin  
—in vitro activity compared with gentamicin sulfate, 4
- Togaviruses  
—rapid preparation of hemagglutinins, 158
- Toxicity  
—*H. maydis*, 586  
—relationship between animal and plant, 193  
—relationship to pathogenicity of *A. longipes*, 313  
—tenuazonic acid, 613
- Tracers  
—hazards, 1053
- Transmission  
—of *P. aeruginosa* in a hospital, 309
- Treponema pallidum*  
—separation from tissue, 714
- Trichoderma viride*  
—trichotoxin A from southern corn leaf blight isolate, 183



- Trichothecenes dermatitic properties  
 —use in T-2 toxin detection, 1029  
 Trichotoxin A  
 —from *T. viride* isolated from southern leaf blight-infected corn, 183  
 Trypsinization of animal tissues  
 —automatic device, 188  
 Trypticase soy broth  
 —bacteremia, detection, 956  
 —commercially available, 956  
 T-2 toxin  
 —detection, 1029  
 —from *Fusarium* spp., 1165  
 Tube-agglutination procedure  
 —modifications, 819  
 Tumor virus  
 —large-volume purification, 1010  
 Turkey disease, 903  
 Turkey poult  
 —responses after consuming *F. trincinctum*-invaded corn, 177  
 Type II (Marek's) leukosis  
 —detection in S- and K-line chickens, 449  
  
 Ultracentrifugation  
 —continuous-flow, 841  
 Ultraviolet inactivation  
 —effect of humidity, 1113  
 Ultraviolet irradiation  
 —*K. aerogenes*, 870  
 Ultraviolet-treated seawater  
 —in study of microbial flora of oysters, 11  
 Unstained mycobacterial smears  
 —method for safe storage and shipment, 826  
 Urine  
 —organisms encountered in cultures over 10 years, 421  
 Urine culture  
 —quantitative method, 919  
  
 Vaccine  
 —oral *E. coli*, 444  
 Vaccine 17D, 908  
 Vaccinia virus  
 —antiviral activity of aldehydes, 232  
 —antiviral activity of oxidized spermine, 232  
 —comparison of assay methods, 214  
 Vapor lamp  
 —for biological research, 972  
 Venezuelan equine encephalitis vaccine  
 —stability, 654  
 Venezuelan equine encephalomyelitis virus  
 —effect of NO<sub>2</sub> on aerosol survival, 481  
*Vibrio parahaemolyticus*  
 —antigenic relationships, 966  
 —inactivation in distilled water, 166  
 —isolation and enumeration, 26  
 —pH and temperature effect on survival in shrimp, 34  
 —relationship of NaCl concentration and temperature to survival, 321  
 —survival in broth and fish homogenate, 321  
 —survival in shrimp tissue, 34  
 Viral inclusion bodies  
 —in adenovirus titration, 1025  
 Viral neuraminidase  
 —measuring, 1060  
 Virus inclusion bodies  
 —nucleopolyhedrosis, 923  
 Virus in water, 880  
 Vitamin assays  
 —microbiological, 531  
 Vitamin B<sub>12</sub>  
 —production and depletion in naturally eutrophic lake, 341  
 Vortex  
 —effect on microbial activity in soil, 398  
  
 Waste disposal, 875  
 Wastewater  
 —biological treatment, 1033  
 West Coast crabs  
 —uptake of phage, 1073  
 —uptake of poliovirus, 170  
 Western equine encephalomyelitis vaccines  
 —mouse potency assay, 104  
 Wheat purothionins  
 —susceptibility of phytopathogenic bacteria, 998  
 Whitefish chubs  
 —destruction of *C. botulinum* spores, 750  
  
 Xanthotoxin  
 —isolation from celery, 852  
 Xenographs  
 —neomycin sulfate as decontaminant of porcine skin, 293  
  
 Yeasts  
 —spoilage of olives, 316  
 Yellow fever vaccine, 908  
*Yersinia pestis*  
 —detection of FR-I antibody, 721  
 Yoghurt starter  
 —susceptibility to antibiotics, 960  
  
 Zeolite  
 —synthetic agent for obtaining pure cell wall material from phenol- and formaldehyde-killed bacteria, 155  
 Zonal centrifugation  
 —large-volume virus yield, 1010, 1015  
 —separation of *T. pallidum* from tissue, 714  
 Zoogaea  
 —utilization of aromatic compounds for growth and isolation, 524  
*Zoogaea ramigera*, 115  
 —ester synthesis, 547

# INDEX TO DATE OF ISSUE

Month	Date of Issue	Pages
January	4 February 1972	1-202
February	14 March 1972	203-436
March	7 April 1972	437-674
April	5 May 1972	675-840
May	9 June 1972	841-1036
June	18 July 1972	1037-1174





# **APPLIED MICROBIOLOGY**

**VOLUME 24**

**BALTIMORE, MD. 21202**

**1972**



# APPLIED MICROBIOLOGY

VOLUME 24 • 1972

## EDITORIAL BOARD

**Marvin P. Bryant**, *Editor-in-Chief* (1976)  
*University of Illinois, Urbana*

**Albert Balows**, *Editor* (1975)  
*Center for Disease Control,*  
*Atlanta, Ga.*

**R. H. Deibel**, *Editor* (1976)  
*University of Wisconsin, Madison*

**A. L. Demain**, *Editor* (1976)  
*Massachusetts Institute of Technology, Cambridge*

**Nathalie J. Schmidt**, *Editor* (1975)  
*California State Department of*  
*Public Health, Berkeley*

R. F. Acker (1972)  
Libero Ajello (1973)  
Milton J. Allison (1974)  
A. W. Anderson (1972)  
Francis F. Busta (1972)  
Alex Ciegler (1974)  
Rita R. Colwell (1974)  
Marjorie A. Darken (1973)  
Walter R. Dowdle (1973)  
Martin S. Favero (1975)  
John C. Feeley (1974)  
James D. Fenters (1973)  
William W. Ferguson (1974)  
Maxwell Finland (1972)  
Anthony F. Gaudy, Jr. (1973)  
Edwin E. Goldreich (1976)  
S. E. Gilliland (1974)  
T. C. Grubb (1972)  
Richard S. Hanson (1972)  
Paul A. Hartman (1974)  
Melvin T. Hatch (1972)  
Clifford W. Hesseltine (1974)

John J. Iandolo (1974)  
Henry D. Isenberg (1974)  
Holger W. Jannasch (1972)  
S. S. Kalter (1972)  
Alfred G. Karlson (1972)  
Leo Kaufman (1972)  
Lloyd L. Kempe (1973)  
George E. Kenny (1973)  
William M. M. Kirby (1972)  
Robert E. Kissling (1972)  
Morton Klein (1974)  
Hubert Lechevalier (1973)  
Joseph Lein (1972)  
John Liston (1974)  
Warren Litsky (1972)  
Robert Mah (1974)  
Joseph L. Melnick (1973)  
William I. Metzger (1974)  
Thomas L. Miller (1973)  
C. F. Niven, Jr. (1973)  
David Paretsky (1973)  
D. Perlman (1974)

David Pramer (1974)  
Carl P. Schaffner (1972)  
E. L. Schmidt (1974)  
Oldrich K. Sebek (1974)  
Warren S. Silver (1973)  
Louis D. Smith (1972)  
Peter B. Smith (1973)  
S. S. Socransky (1972)  
Mortimer P. Starr (1972)  
Christian Stoll (1973)  
Guenther Stotzky (1974)  
M. J. Thirumalachar (1973)  
Marvin Turck (1974)  
Hamao Umezawa (1973)  
D. I. C. Wang (1972)  
George H. Warren (1972)  
Sydney J. Webb (1972)  
Eugene D. Weinberg (1972)  
R. P. Williams (1972)  
Benjamin J. Wilson (1972)  
G. N. Wogan (1974)  
Alan G. Wolin (1974)

**Robert A. Day**, *Managing Editor*, 1913 I St., N.W., Washington, D.C. 20006

## EX OFFICIO

**R. G. E. Murray**, *President* (1972-1973)

**Donald E. Shay**, *Secretary*

**L. Leon Campbell**, *Vice-President* (1972-1973)

**T. J. Carski**, *Treasurer*

*Applied Microbiology*, a publication of the American Society for Microbiology, 1913 I St., N.W., Washington, D.C. 20006, is devoted to the advancement and dissemination of applied knowledge concerning microorganisms. *Applied Microbiology* is published monthly, two volumes per year. The subscription price is \$60 (foreign, \$61) per year. Single copies are \$6.00 (foreign, \$6.25). Members of the American Society for Microbiology may receive *Applied Microbiology* as part of their dues. Correspondence relating to subscriptions, nonreceipt of journal, reprints, defective copies, availability of back issues, and lost or late proofs should be directed to the ASM Publications Office, 1913 I St., N.W., Washington, D.C. 20006 (area 202 833-9416). Correspond-

ence from ASM members relating to membership dues, member subscriptions, changes of address, incorrect address, incorrect journals, etc., should be directed to the Executive Secretary, American Society for Microbiology, 1913 I St., N.W., Washington, D.C. 20006. Published monthly by the ASM at 428 E. Preston St., Baltimore, Md. 21202.

Second-class postage paid at Baltimore, Md. 21202, and at additional mailing offices. Made in the United States of America. Copyright © 1973, American Society for Microbiology. All Rights Reserved.

## Clinical Microbiology and Immunology

Improved Procedure for Identification of Group D Enterococci with Two New Media. WIE-SHING LEE .....	1
Detection of <i>Chlamydia psittaci</i> by Immunofluorescence. VESTER J. LEWIS, W. LANIER THACKER, AND A. F. CACCIAPUOTI .....	8
Indirect Hemagglutination Test for Chlamydial Antibodies. VESTER J. LEWIS, W. LANIER THACKER, AND HELEN M. ENGELMAN .....	22
Evaluation of the Qualitative and Automated Quantitative Microhemagglutination Assay for Antibodies to <i>Treponema pallidum</i> . E. M. COFFEY, L. L. BRADFORD, L. S. NARITOMI, AND R. M. WOOD .....	26
Efficiency of a Transport Medium for the Recovery of Aerobic and Anaerobic Bacteria from Applicator Swabs. A. L. BARRY, G. D. FAY, AND R. L. SAUER .....	31
Pneumococci Producing Beta Hemolysis on Agar. VICTOR LORIAN AND BODUN POPOOLA .....	44
Removal of Nonspecific Antiproteinases from Serum of Rabbits Hyperimmunized Against <i>Micrococcus</i> and <i>Staphylococcus</i> Proteinases. R. K. SCHERER AND R. W. BROWN .....	48
Catalase Test as an Aid to the Identification of <i>Enterobacteriaceae</i> . WELTON I. TAYLOR AND DAVID ACHANZAR .....	58
Evaluation and Standardization of an Agglutination Test for Human Listeriosis. SANDRA A. LARSEN AND WALLIS L. JONES .....	101
Influence of Mouse Strain on the Assayed Potency (Unitage) of Tetanus Toxoid. M. CAROLYN HARDEGREE, MARGARET PITTMAN, AND CLIFFORD J. MALONEY .....	120
<i>Escherichia coli</i> O Antigen Typing by Means of a Mechanized Microtechnique. P. A. M. GUINÉE, C. M. AGTERBERG, AND W. H. JANSEN .....	127
Indirect Fluorescent-Antibody and Quantitative Agar-Gel Immunodiffusion Tests for the Serological Diagnosis of Paracoccidioidomycosis. ANGELA RESTREPO M. AND LUZ H. MONCADA F. ....	132
Use of Acetamide Broth in the Isolation of <i>Pseudomonas aeruginosa</i> from Rectal Swabs. RODNEY F. SMITH AND SANDRA L. DAYTON .....	143
Tetrazolium Agar Overlay in Test for <i>Mycoplasma pneumoniae</i> . LARRY L. WOODS AND THOMAS F. SMITH .....	148
Simplified Fluorescent-Antibody Staining Method for Primary Plate Isolates of Group A Streptococci. GRACE MARY EDERER AND S. STEPHEN CHAPMAN .....	160
Improved Hemagglutination Test for Identifying Type A Strains of <i>Pasteurella multocida</i> . G. R. CARTER .....	162

## Virology and Viral Immunology

Concentration and Purification of Poliovirus by Ultrafiltration and Isopycnic Centrifugation. LOUIS E. GUSKEY AND DAVID A. WOLFF .....	13
Elimination of <i>Mycoplasma</i> Contaminants from Virus Stocks by Treatment with Nonionic Detergents. RONALD G. WOLFORD AND FRANK M. HETRICK .....	18
Recovery of Protective Activity in Rabies Virus Vaccines Concentrated and Purified by Four Different Methods. H. G. AASLESTAD AND T. J. WIKTOR .....	37
Problems in the Laboratory Isolation of Simian Hemorrhagic Fever Viruses and Isolation of the Agent Responsible for the Sussex/69 Epizootic. MARTIN G. MYERS, MONROE M. VINCENT, SALLY A. HENSEN, AND NICOLA M. TAURASO .....	62
Chromatography of Venezuelan Equine Encephalomyelitis Virus Strains on Calcium Phosphate. CARL E. PEDERSEN, JR., DONALD R. SLOCUM, AND NEIL H. LEVITT .....	91
Differentiation Between Herpes Simplex Virus Type 1 and Type 2 Strains by Immunoelectroosmophoresis. STIG JEANSSON .....	96
Quantitative Assay of Paravaccinia Virus Based on Enumeration of Inclusion-Containing Cells. J. C. CAMBIER AND E. S. MEEK .....	138

- Rapid Complement Fixation Technique for Estimating Complement-Fixing Antigen Elution Profiles of Viruses from Gel Filtration Columns. ROBERT A. CORNESKY, WILLIAM McD. HAMMON, GLADYS E. SATHER, AND ROBERT ATCHISON..... 157

### Food Microbiology and Toxicology

- Technique and Apparatus for Rapid and Inexpensive Enumeration of Bacteria. A. N. SHARPE, E. J. DYETT, A. K. JACKSON, AND D. C. KILSBY..... 4
- Activation of a Toxic Component of *Clostridium botulinum* Types C and D by Trypsin. M. W. EKLUND AND F. T. POYSKY..... 108
- Potential Production and Detoxification of Penicillic Acid in Mold-Fermented Sausage (Salami). A. CIEGLER, H.-J. MINTZLAFF, D. WEISLEDER, AND L. LEISTNER..... 114
- Gas-Volume Measurement System for Evaluating Effectiveness of Antimicrobial Compounds. A. D. KING, JR., W. L. STANLEY, AND H. R. BOLIN..... 146
- Use of Gelatinase in the Routine Sampling of Gelatin for *Salmonella* Contamination. MICHAEL J. ROSE..... 153

### Ecology and Taxonomy

- Machine for Automatic Bacteriological Pour Plate Preparation. A. N. SHARPE, D. R. BIGGS, AND R. J. OLIVER..... 70

### Metabolism and Products

- Analysis of Tobacco and Smoke Condensate for Penicillic Acid. J. P. SNOW, G. B. LUCAS, D. HARVAN, R. W. PERO, AND ROBERT G. OWENS..... 34
- Lactose-Hydrolyzing Enzymes of *Lactobacillus* Species. L. PREMI, W. E. SANDINE, AND P. R. ELLIKER..... 51
- Cellulolytic Activity of *Thermomonospora curvata*: Nutritional Requirements for Cellulase Production. FRED J. STUTZENBERGER..... 77
- Cellulolytic Activity of *Thermomonospora curvata*: Optimal Assay Conditions, Partial Purification, and Product of the Cellulase. FRED J. STUTZENBERGER..... 83
- Cellulases of *Thermomonospora fusca* and *Streptomyces thermodiataticus*. DON L. CRAWFORD AND ELIZABETH MCCOY..... 150
- Influence of Sodium Chloride on Growth of *Neisseria meningitidis*. JOHN R. MITZEL, JACK A. HUNTER, AND WALTER E. BEAM, JR..... 155

Volume 24

## Contents for August

Number 2

### Clinical Microbiology and Immunology

- Evaluation of a Microtiter Latex Agglutination Test for Histoplasmosis. JAY D. GERBER, RICHARD E. RILEY, AND ROBERT D. JONES..... 191
- Comparison of the Reliability and Sensitivity of Three Serological Procedures in Detecting Antibody to *Yersinia pestis* (*Pasteurella pestis*). JOHN D. MARSHALL, JR., JOSEPH A. MANGIAFICO, AND DAN C. CAVANAUGH..... 202
- Inhibition of Fungal Growth in the Cultural Isolation of Mycobacteria. R. S. MERKAL AND W. D. RICHARDS..... 205
- Automated Complement Fixation with Low Reagent Consumption. I. OLITZKY..... 208
- Epidemiology of *Pseudomonas aeruginosa* in a Burns Hospital: Evaluation of Serological, Bacteriophage, and Pyocin Typing Methods. PAUL EDMONDS, RAYMOND R. SUSKIND, BRUCE G. MACMILLAN, AND IAN A. HOLDER..... 213
- Epidemiology of *Pseudomonas aeruginosa* in a Burns Hospital: Surveillance by a Combined Typing System. PAUL EDMONDS, RAYMOND R. SUSKIND, BRUCE G. MACMILLAN, AND IAN A. HOLDER..... 219

Reliability of the Kirby-Bauer Disc Diffusion Method for Detecting Methicillin-Resistant Strains of <i>Staphylococcus aureus</i> . W. LAWRENCE DREW, A. L. BARRY, RICHARD O'TOOLE, AND JOHN C. SHERRIS . . . . .	240
Improved Dextran Sulfate-Calcium Chloride Method for the Removal of Nonspecific Inhibitors with Modifications for Nonspecific Agglutinin Removal in the Rubella Hemagglutination Inhibition Test. D. B. NELSON, E. P. QUIRIN, AND S. L. INHORN . . . . .	264
Apparatus for Fixing, Staining, and Rinsing of Tissue Cultures for Fluorescent-Antibody Testing. GEORGE M. POOLE . . . . .	281
Erythritol as a Selective Substrate for the Growth of <i>Serratia marcescens</i> . IRVING J. SLOTNICK AND MARY DOUGHERTY . . . . .	292
Use of a Tabletop Computer for Antibiotic Assays. A. P. ADAMS, JR., AND E. JACK BENNER . . . . .	296

### Virology and Viral Immunology

Use of Polyelectrolytes and Electron Microscopy for Detection of Viruses from Stool. R. K. CHAUDHARY AND J. C. N. WESTWOOD . . . . .	270
Susceptibility of Mammalian (Hamster) Cell Culture to Infection with Herpesvirus of Turkeys. H. G. BEDIGIAN AND MARTIN SEVOIAN . . . . .	275
Elimination of Repeated Clot Formation in Mouse Ascitic Fluid Containing Arbovirus Antibodies. DUMRONG CHIEWSILP AND JACK M. MCCOWN . . . . .	288

### Food Microbiology and Toxicology

<i>Clostridium botulinum</i> Type F: Isolation from Venison Jerky. T. F. MIDURA, G. S. NYGAARD, R. M. WOOD, AND H. L. BODILY . . . . .	165
Stomaching: a New Concept in Bacteriological Sample Preparation. A. N. SHARPE AND A. K. JACKSON . . . . .	175
Control of <i>Penicillium martensii</i> Development and Penicillic Acid Production by Atmospheric Gases and Temperatures. E. B. LILLEHOJ, M. S. MILBURN, AND A. CIEGLER . . . . .	198
Utilization of Collagenous By-Products from the Meat Packing Industry: Production of Single-Cell Protein by the Continuous Cultivation of <i>Bacillus megaterium</i> . WAYNE A. BOUGH, W. L. BROWN, JULES D. PORSCH, AND D. M. DOTY . . . . .	226
Plating Medium pH as a Factor in Apparent Survival of Sublethally Stressed Yeasts. F. EUGENE NELSON . . . . .	236
Severe Oral Lesions in Chickens Caused by Ingestion of Dietary Fusariotoxin T-2. R. D. WYATT, B. A. WEEKS, P. B. HAMILTON, AND H. R. BURMEISTER . . . . .	251

### Ecology and Taxonomy

Enteric Bacterial Growth Rates in River Water. CHARLES W. HENDRICKS . . . . .	168
---	-----

### Metabolism and Products

Fluorometric Determination of Deoxyribonucleic Acid in Bacteria with Ethidium Bromide. J. A. DONKERSLOOT, S. A. ROBRISH, AND M. I. KRICHEVSKY . . . . .	179
Distribution of Enzymes Forming Polysaccharide from Sucrose and the Composition of Extracellular Polysaccharide Synthesized by <i>Streptococcus mutans</i> . STANLEY A. ROBRISH, WILLIAM REID, AND MICAH I. KRICHEVSKY . . . . .	184
Tremorgenic Toxin from <i>Penicillium verruculosum</i> . R. J. COLE, J. W. KIRKSEY, J. H. MOORE, B. R. BLANKENSHIP, U. L. DIENER, AND N. D. DAVIS . . . . .	248
Repair of Injury Induced by Freezing <i>Escherichia coli</i> as Influenced by Recovery Medium. B. RAY AND M. L. SPECK . . . . .	258
Demonstration of Rhodanese Activity in Polyacrylamide Gels. J. R. MURPHY, J. FRANKENFELD, J. CALVERT, AND R. C. TILTON . . . . .	283
Improvement of Microbial Assays of Vitamins. EDWARD J. HEED . . . . .	286
Elemental Analysis of Vitamin-Free Casamino Acids. RICHARD A. NOLAN AND WILLIAM G. NOLAN . . . . .	290
Effect of the Medium on Bacteriocin Production Among Strains of <i>Streptococcus mutans</i> . A. H. ROGERS . . . . .	294

## Clinical Microbiology and Immunology

Isolation and Characterization of an Isolate (HN) of Marek's Disease Virus with Low Pathogenicity. B. R. CHO AND S. G. KENZY.....	299
Occurrence of <i>Mycobacterium</i> Other than <i>Mycobacterium tuberculosis</i> in the Oral Cavity and in Sputum. CRETYL C. MILLS.....	307
Long-Term Preservation and Storage of Mycobacteria. THOMAS H. KIM AND GEORGE P. KUBICA.....	311
Mycobacterial Agglutination-Inhibition Test. W. D. RICHARDS AND W. G. EACRET.....	318
Use of Trypsin-Modified Human Erythrocytes in Rubella Hemagglutination-Inhibition Testing. E. P. QUIRIN, D. B. NELSON, AND S. L. INHORN.....	353
Evaluation of Modified R-B System for Identification of Members of the Family <i>Enterobacteriaceae</i> . GARY T. MCILROY, PAULINE K. W. YU, WILLIAM J. MARTIN, AND JOHN A. WASHINGTON II.....	358
Three-Tube Method for Screening Stool Cultures for <i>Salmonella</i> and <i>Shigella</i> . YHU-HSIUNG LEE, A. KATHLEEN DALY, AND PAULINE THURSTON.....	409
API System: a Multitube Micromethod for Identification of <i>Enterobacteriaceae</i> . P. B. SMITH, K. M. TOMFOHRDE, D. L. RHODEN, AND A. BALOWS.....	449
Purification of Large Amounts of Murine Ribonucleic Acid Tumor Viruses Produced in Roller Bottle Cultures. JAMES J. SYREWICZ, R. B. NASO, C. S. WANG, AND RALPH B. ARLINGHAUS.....	488
Method for Staining and Preserving Agar Gel Diffusion Plates. EARL D. LUMPKINS, SR.....	499
Improved Cell Dispersal Method by Low-Temperature Incubation of Tissue in a Trypsin-Citrate Solution. A. L. VAN WEZEL, P. A. VAN HEMERT, W. PARISIUS, N. B. CUCAKOVICH, AND H. G. MACMORINE.....	506
Negligible Evaporation Retardation by Oxyethylene Docosanols Under Static Conditions. PAUL A. HARTMAN AND JUDITH A. WEBER.....	508

## Virology and Viral Immunology

Optimization of the Interferon Assay Using Inhibition of Semliki Forest Virus-Ribonucleic Acid Synthesis. HANS KOBLET, URSULA KOHLER, AND ROBERT WYLER.....	323
Recovery of Dengue Viruses from Tissues of Experimentally Infected Rhesus Monkeys. NYVEN J. MARCHETTE, SCOTT B. HALSTEAD, DONALD R. NASH, AND ANDREW C. STENHOUSE.....	328
Pathology of Exfoliated Oropharyngeal Epithelial Cells Infected with Wild-Type Adenovirus. DAVID P. MCCORMICK, QUIRINO GALAPON, AND CARL BERLING.....	389
Comparison of Immunization Methods for Producing Reference Adenovirus Antisera in Horses. JOHN C. HIERHOLZER, WILLIAM C. GAMBLE, KENNETH D. QUIST, AND W. ADRIAN CHAPPELL.....	398
Agar Diffusion Method for Negative Staining of Microbial Suspensions in Salt Solutions. NAN ANDERSON AND FRANCES W. DOANE.....	495
Concentration of Reovirus and Adenovirus from Sewage and Effluents by Protamine Sulfate (Salmine) Treatment. BEATRICE ENGLAND.....	510

## Food Microbiology and Toxicology

<i>Bacillus cereus</i> -Induced Fluid Accumulation in Rabbit Ileal Loops. W. M. SPIRA AND J. M. GEOFFERT.....	341
Nitrite Burn in Fermented Sausage. J. N. BACUS AND R. H. DEIBEL.....	405
Occurrence of Aflatoxins and Aflatoxin-Producing Strains of <i>Aspergillus</i> spp. in Soybeans. GEORGE A. BEAN, JOHN A. SCHILLINGER, AND WILLIAM L. KLARMAN.....	437
Effect of Water Activity on Enterotoxin A Production and Growth of <i>Staphylococcus aureus</i> . JOHN A. TROLLER.....	440



<i>Vibrio parahaemolyticus</i> Gastroenteritis in Maryland: Laboratory Aspects. JOHN R. MOLEND, WILLIAM G. JOHNSON, MORRIS FISHBEIN, BARRY WENTZ, IRA J. MEHLMAN, AND THOBURN A. DADISMAN, JR. ....	444
Radiation Sterilization of Prototype Military Foods: Low-Temperature Irradiation of Codfish Cake, Corned Beef, and Pork Sausage. ABE ANELLIS, D. BERKOWITZ, W. SWANTAK, AND C. STROJAN. ....	453
Effect of Ultrasonic Waves on the Heat Resistance of <i>Bacillus cereus</i> and <i>Bacillus licheniformis</i> Spores. J. BURGOS, J. A. ORDÓÑEZ, AND F. J. SALA. ....	497
Salmonellae and <i>Edwardsiella tarda</i> in Gull Feces: a Source of Contamination in Fish Processing Plants. R. W. BERG AND A. W. ANDERSON. ....	501
Simple Method for Mass Production and Collection of Conidia from <i>Hemispora stellata</i> . F. J. SALA AND J. BURGOS. ....	504

### Ecology and Taxonomy

Salmonellae as an Index of Pollution of Surface Waters. WILLIAM B. CHERRY, JOHN B. HANKS, BERENICE M. THOMASON, ALMA M. MURLIN, JAMES W. BIDDLE, AND JOHN M. CROOM. ....	334
Environmental Factors Correlated with Size of Bacterial Populations in a Polluted Stream. HELEN BRASFEILD. ....	349
Microbial Degradation of Crude Oil: Factors Affecting the Dispersion in Sea Water by Mixed and Pure Cultures. ABRAHAM REISFELD, EUGENE ROSENBERG, AND DAVID GUTNICK. ....	363
Microbial Population of Feedlot Waste and Associated Sites. R. A. RHODES AND G. R. HRUBANT. ....	369
Enterobacteria in Feedlot Waste and Runoff. G. R. HRUBANT, R. V. DAUGHERTY, AND R. A. RHODES. ....	378
Hydrodynamic Focusing and Electronic Cell-Sizing Techniques. M. L. SHULER, R. ARIS, AND H. M. TSUCHIYA. ....	384
Improved Staining of Extracellular Polymer for Electron Microscopy: Examination of <i>Azotobacter</i> , <i>Zoogloea</i> , <i>Leuconostoc</i> , and <i>Bacillus</i> . G. D. CAGLE, R. M. PFISTER, AND G. R. VELA. ....	477
Comparison of Three Techniques for the Total Count of Anaerobes from Intestinal Contents of Pigs. I. J. VERVAEKE AND C. J. VAN NEVEL. ....	513
Fungi Isolated from Flue-Cured Tobacco Sold in Southeast United States, 1968-1970. RONALD E. WELTY. ....	518

### Metabolism and Products

Identification of a Germination System Involved in the Heat Injury of <i>Bacillus subtilis</i> Spores. F. F. BUSTA AND D. M. ADAMS. ....	412
Ultrahigh-Temperature Activation of a Low-Temperature <i>Bacillus subtilis</i> Spore Germination System. D. M. ADAMS AND F. F. BUSTA. ....	418
Dimethylselenide and Dimethyltelluride Formation by a Strain of <i>Penicillium</i> . R. W. FLEMING AND M. ALEXANDER. ....	424
Fermentation Process for Double-Stranded Ribonucleic Acid, an Interferon Inducer. B. D. LAGO, J. BIRNBAUM, AND A. L. DEMAIN. ....	430
Ultrastructural Alterations Induced by Moist Heat in <i>Bacillus cereus</i> . M. T. SILVA, AND J. C. F. SOUSA. ....	463
Method for Simultaneous Detection of Proteinase and Esterase Activities in Extremely Halophilic Bacteria. CARMEN GUTIERREZ AND CARMEN GONZALEZ. ....	516
Novel System for Improved Control of Filamentous Microorganisms in Continuous Culture. H. BRUNNER AND M. RÖHR. ....	521

Volume 24

## Contents for October

Number 4

### Clinical Microbiology and Immunology

Development and Evaluation of a Simple Latex Agglutination Test for Diagnosis of Tuberculosis. R. V. COLE, A. W. LAZARUS, AND H. G. HEDRICK. ....	525
---	-----



Introduction of <i>Pseudomonas aeruginosa</i> into a Hospital via Vegetables. SPYROS D. KOMINOS, CHARLES E. COPELAND, BARBARA GROSIK, AND BOSKO POSTIC.....	567
Common Antigenic Determinant in a Rumen Organism and in Salmonellae Containing the Antigen O4. M. ELISABETH SHARPE AND B. REITER.....	613
Isolation of Vi Antigen and a Simple Method for Its Measurement. K. H. WONG AND JOHN C. FEELEY.....	628
Bacteriological and Pathological Study of Animals Given Freund Adjuvant. R. H. RIGDON AND T. SCHADEWALD.....	634
Survival of Human Dental Plaque Flora in Various Transport Media. SALAM A. SYED AND WALTER J. LOESCHE.....	638
Plate-Slide for the Culture and Morphological Observation of Fungi. MARIAN W. RICHTER AND DANIEL AMSTERDAM.....	667
Comparison of Streptococcal R Antigens. HAZEL W. WILKINSON.....	669
Microsystem for Collecting and Shipping Diagnostic Sera. A. D. WHITEMORE AND J. E. WILLIAMS.....	671

### Virology and Viral Immunology

Early Protection in Hamsters Immunized with Attenuated Venezuelan Equine Encephalomyelitis Vaccine. FRANCIS E. COLE, JR., CAROL E. PEDERSEN, JR., AND DAVID M. ROBINSON.....	604
Standardization and Quantitation of Immunofluorescence in the Rabies Fluorescent-Antibody Test. C. V. TRIMARCHI AND J. G. DEBBIE.....	609
Relative Chlorine Resistance of Poliovirus I and Coliphages f2 and T <sub>2</sub> in Water. PRAFULL C. SHAH AND JOAN MCCAMISH.....	658
Stability of a Modified, Live Panleucopenia Virus Stored in Liquid Phase. G. M. POOLE.....	663

### Food Microbiology and Toxicology

Radiometric Detection of Some Food-Borne Bacteria. JOSEPH J. PREVITE.....	535
Polyelectrolyte Flocculation as an Aid to Recovery of Enteroviruses from Oysters. K. D. KOSTENBADER, JR., AND D. O. CLIVER.....	540
New Medium for the Isolation and Enumeration of Pseudomonads. MYRON SOLBERG, VIRGINIA S. O'LEARY, AND WILLIAM E. RIHA, JR.,.....	544
Death of <i>Lactobacillus bulgaricus</i> Resulting from Liquid Nitrogen Freezing. R. B. SMITTLE, S. E. GILLILAND, AND M. L. SPECK.....	551
Effect of Shaking Speed on the Secretion of Enterotoxin B by <i>Staphylococcus aureus</i> . GLYNN G. DIETRICH, ROBERT J. WATSON, AND GERALD J. SILVERMAN.....	561
Metabolic Process During the Repair of Freeze-Injury in <i>Escherichia coli</i> . B. RAY AND M. L. SPECK.....	585
Assessment of the Sanitary Effectiveness of Holding Temperatures on Beef Cooked at Low Temperature. DAVID F. BROWN AND ROBERT M. TWEDT.....	599
Microfermentation Series for Identification of Single Colonies of <i>Enterobacteriaceae</i> . C. N. HUHTANEN, J. NAGHSKI, AND E. S. DELLA MONICA.....	618
Rapid, Direct Fluorescent-Antibody Method for the Detection of Salmonellae in Food and Feeds. N. F. INSALATA, C. W. MAHNKE, AND W. G. DUNLAP.....	645

### Ecology and Taxonomy

Bacterial Degradation of Detergent Compounds. ROBERT A. GOODNOW AND ARTHUR P. HARRISON, JR.....	555
Enterococci in Insects. JONATHAN D. MARTIN AND J. ORVIN MUNDT.....	575
2,2-Dibromo-3-Nitropropionamide, a Compound with Slimicidal Activity. PAUL A. WOLF AND P. W. STERNER.....	581
Cellular Fatty Acid Composition of Selected <i>Pseudomonas</i> Species. C. WAYNE MOSS, S. B. SAMUELS, AND R. E. WEAVER.....	596
<i>Pseudomonas</i> sp. ATCC 27330 with 17-Dehydrogenase Activity: a Contaminant in an Endocrine Laboratory. RUTH B. KUNDSIN, RICHARD H. UNDERWOOD, AND LESLIE I. ROSE.....	665

## Metabolism and Products

- Similarity in Several Properties of Psychrophilic Bacteria Grown at Low and Moderate Temperatures. HILMER A. FRANK, ANN REID, LEATRICE M. SANTO, NORMA A. LUM, AND SANDRA T. SANDLER. . . . . 571
- Separation of Prodigiosenes and Identification as Prodigiosin Syntrophic Pigment from Mutant Pairs of *Serratia marcescens*. WALTER R. HEARN, ROBERT H. WILLIAMS, ROGER C. BURGUS, AND ROBERT P. WILLIAMS. . . . . 591
- Initiation of Dermatophyte Pleomorphic Strain Sporulation by Increased Aeration. W. J. PAGE AND J. J. STOCK. . . . . 650
- Microbial Metabolites with Insecticidal Properties M. COLE AND G. N. ROLINSON. . . . . 660

## Volume 24

## Contents for November

## Number 5

## Clinical Microbiology and Immunology

- Determination of Antibody to Pneumococcal Polysaccharides with Chromic Chloride-Treated Human Red Blood Cells and Indirect Hemagglutination. ARTHUR J. AMMANN AND ROBERT J. PELGER. . . . . 679
- Effect of Sodium Polyanetholesulfonate on Antimicrobial Systems in Blood. M. E. BELDING AND S. J. KLEBANOFF. . . . . 691
- Detection of Coronavirus 229E Antibody by Indirect Hemagglutination. HAROLD S. KAYE, SUAT BEE ONG, AND WALTER R. DOWDLE. . . . . 703
- Pseudomonas putrefaciens* Isolates from Clinical Specimens. P. S. RILEY, H. W. TATUM, AND R. E. WEAVER. . . . . 798
- Device for Eliminating Oil Condensation in the Air Flowmeter in CO<sub>2</sub> Incubator. Y. T. CHANG. . . . . 840
- Isolation of a New Soluble Antigen from the Yeast Phase of *Histoplasma capsulatum*. MICHAEL W. REEVES, LEO PINE, LEO KAUFMAN, AND DAVID McLAUGHLIN. . . . . 841
- Vitamin A Adjuvant with *Arizona hinshawii* Bacterin. H. E. ADLER AND A. J. DAMASSA. . . . . 849

## Virology and Viral Immunology

- Validity of Spinal Cord Examination as a Substitute Procedure for Routine Rabies Diagnosis. TSUN K. LEE AND MAURICE E. BECKER. . . . . 714
- Cultural Characteristics of a Cell Line Derived from an Equine Sarcoid. R. E. WATSON, JR., J. J. ENGLAND, AND K. A. LARSON. . . . . 727
- Interferon Production by Human Cells In Vitro. CELSA A. SPINA, R. SHIHMAN CHANG, L. MISHRA, AND H. DEAN GOLDEN. . . . . 735
- Simplified Radioimmunoassay for Diagnostic Serology. HARRIET D. HUTCHINSON AND DONALD W. ZIEGLER. . . . . 742
- Use of a Clonal Line of Porcine Kidney Cell Cultures for Primary Isolation and Vaccine Studies with Adenoviruses. WILLIAM J. MOGABGAB AND BEATRICE POLLOCK. . . . . 760
- Measurement of Respiratory Volume for Virus Retention Studies in Mice. GLEN A. FAIRCHILD. . . . . 812
- Enhancement of Murine Leukemia Virus Replication in Rat Tumor Cells Containing Rat C-Type Virus. W. TURNER, G. PEARSON, AND LESLIE R. BASS. . . . . 837

## Food Microbiology and Toxicology

- Identification of T-2 Toxin in Moldy Corn Associated with a Lethal Toxicosis in Dairy Cattle. IH-CHANG HSU, E. B. SMALLEY, F. M. STRONG, AND WILLIAM E. RIBELIN. . . . . 684
- Isolation and Identification of Psychrophilic Species of *Clostridium* from Milk. C. H. BHADSAVLE, T. E. SHEHATA, AND E. B. COLLINS. . . . . 699
- Efficacy of a Fluorescent-Antibody Procedure for Identifying *Bacillus cereus* in Foods. H. U. KIM AND J. M. GOEFFERT. . . . . 708
- Chemically Defined Medium for Growth and Sporulation of *Clostridium perfringens*. MICHAEL N. TING AND DANIEL Y. C. FUNG. . . . . 755

Quantitation of <i>Clostridium perfringens</i> Type A Enterotoxin by Electroimmunodiffusion. CHARLES L. DUNCAN AND EILEEN B. SOMERS.....	801
Sporulation of <i>Clostridium perfringens</i> Type A in Vacuum-Sealed Meats. F. M. DEWORK, JR.....	834
Evaluation of Plastic Multi-Well Plates for Serological Screening of <i>Salmonella</i> Cultures with Spicer-Edwards Pooled Antisera. GEORGE K. MORRIS, CAROLYN D. STEELE, AND JOY G. WELLS.....	846

### Ecology and Taxonomy

Polysaccharide Produced by <i>Anacystis nidulans</i> : Its Ecological Implication. VIJAY K. SANGAR AND PATRICK R. DUGAN.....	732
Effect of Physiological Age and State on Survival of Desiccated <i>Pseudomonas aeruginosa</i> . PETER SKALIY AND R. G. EAGON.....	763
An Unclassified Gram-Negative Rod Isolated from the Pharynx on Thayer-Martin Medium (Selective Agar). DANNIE G. HOLLIS, GERALDINE L. WIGGINS, AND ROBERT E. WEAVER.....	772
Automatic Surface Inoculation of Agar Trays. JUDD R. WILKINS, STACEY M. MILLS, AND ELIZABETH H. BOYKIN.....	778
Survival of Coliform Bacteria in Natural Waters: Field and Laboratory Studies with Membrane-Filter Chambers. GORDON A. MCFETERS AND DAVID G. STUART.....	805
Adsorption of Colloidal Iron by Bacteria. I. C. MACRAE AND J. F. EDWARDS.....	819
Reliable Procedure for Silica Gel Preparation. E. B. ROSLYCKY.....	844

### Metabolism and Products

Inhibitory Effect of Glycerin on <i>Vibrio parahaemolyticus</i> and <i>Salmonella</i> . DOKI CHUN, SUNG YONG SEOL, RYUNBIN TAK, AND CHEONG KYU PARK.....	675
Properties of Thymineless Strains of <i>Bacillus megaterium</i> . W. F. MAISCH AND J. T. WACHSMAN.....	717
Identification of the Predominant Volatile Compounds Produced by <i>Aspergillus flavus</i> . E. KAMIŃSKI, L. M. LIBBEY, S. STAWICKI, AND E. WASOWICZ.....	721
Degradation of Chlorbromuron and Related Compounds by the Fungus <i>Rhizoctonia solani</i> . MARTIN WEINBERGER AND JEAN-MARC BOLLAG.....	750
Chromogenesis mirabilis in <i>Streptomyces griseus</i> . TADASHI ARAI AND YUZURU MIKAMI.....	768
Cinemicrographic Study of the Development of Subsurface Colonies of <i>Staphylococcus aureus</i> in Soft Agar. JUDD R. WILKINS, WAYNE L. DARNELL, AND ELIZABETH H. BOYKIN.....	786
Production of Diagnostic Pigment by Phenoloxidase of <i>Cryptococcus neoformans</i> . C. E. SHAW AND L. KAPICA.....	824
pH-Dependent Polyol Production in <i>Moniliella tomentosa</i> . L. HANSSSENS, A. VAN REGENMORTEL, AND H. VERACHTERT.....	831

## Volume 24

## Contents for December

## Number 6

### Clinical Microbiology and Immunology

Bacteriophage Typing of Clinically Isolated <i>Serratia marcescens</i> . REX L. HAMILTON AND WILLIAM J. BROWN.....	899
Comparative Characteristics of Human and Porcine Staphylococci and Their Differentiation in Burn Xenografting Procedures. RODNEY F. SMITH AND CAROL L. BETTGE.....	929
Lipid Content of Antibiotic-Resistant and -Sensitive Strains of <i>Serratia marcescens</i> . CHUAN-YI CHANG, ROGER E. MOLAR, AND JOSEPH C. TSANG.....	972

### Viral Infections

Agglutination of African Primate and Rodent Erythrocytes by Adenoviruses, Reoviruses, and Enteroviruses. L. N. MUTANDA AND G. M. R. MUNUBE.....	939
Growth Characteristics of a Herpesvirus of Turkeys. RONALD J. ASH AND JOHN D. WARE.....	943

Miniature Tissue Culture Technique with a Modified Plastic Microplate. ELISEO M. HERNANDEZ-BAUMGARTEN.....	999
Detection of Hepatitis B Antigen by Counter-Immunoelectrophoresis: Enhancing Role of Homologous Serum Diluents. GORDON R. DREESMAN, F. BLAINE HOLLINGER, AND JOSEPH L. MELNICK.....	1001
Stability of Barium Sulfate Turbidity Standards. JOHN A. WASHINGTON II, EDWARD WARREN, AND ALFRED G. KARLSON.....	1013

### Food Microbiology and Toxicology

Effect of Extracts of the Bark of <i>Saccoglottis gabonensis</i> on the Microflora of Palm Wine. S. I. FAPARUSI AND O. BASSIR.....	853
Thermal Injury and Recovery of <i>Bacillus subtilis</i> . L. LENKART MILLER AND Z. JOHN ORDAL.....	878
Comparative Studies on the Detoxification of Aflatoxins by Sodium Hypochlorite and Commercial Bleaches. CHARLES Y. YANG.....	885
Effect of pH and Oxygen Tension on Staphylococcal Growth and Enterotoxin Formation in Fermented Sausage. LYNN E. BARBER AND R. H. DEIBEL.....	891
Convenient Assay for Staphylococcal Nuclease by the Metachromatic Well-Agar-Diffusion Technique. R. V. F. LACHICA, P. D. HOEPRICH, AND C. E. FRANTI.....	920
Agar Medium for Differential Enumeration of Lactic Streptococci. M. S. REDDY, E. R. VEDAMUTHU, C. J. WASHAM, AND G. W. REINBOLD.....	947
Associative Growth Studies in Three-Strain Mixtures of Lactic Streptococci. M. S. REDDY, E. R. VEDAMUTHU, C. J. WASHAM, AND G. W. REINBOLD.....	953
Bacteriological Survey of the Blue Crab Industry. FRED A. PHILLIPS AND JAMES T. PEELER.....	958
Potato Aroma of Lamb Carcasses. R. B. TOMPKIN AND A. B. SHAPARIS.....	1003
Effects of Irradiation on the Survival of Virus in West Coast Oysters. RUDOLPH DI GIROLAMO, J. LISTON, AND J. MATCHES.....	1005
Sauerkraut Waste: a Favorable Medium for Cultivating Yeasts. Y. D. HANG, D. F. SPLITSTOESSER, AND R. L. LANDSCHOOT.....	1007

### Ecology and Taxonomy

Surface-Bonded Antimicrobial Activity of an Organosilicon Quaternary Ammonium Chloride. A. J. ISQUITH, E. A. ABBOTT, AND P. A. WALTERS.....	859
Membrane Filter Technique for Enumeration of <i>Pseudomonas aeruginosa</i> . M. A. LEVIN AND V. J. CABELLI.....	864
<i>Klebsiella</i> Biotypes Among Coliforms Isolated from Forest Environments and Farm Produce. D. W. DUNCAN AND W. E. RAZZELL.....	933
Ecology of Staphylococci in a General Medical Service. JOHN P. PHAIR, CHATRCHAI WATANAKUNAKORN, LEONARD GOLDBERG, AND JUDITH CARLETON.....	967
Differentiation Between <i>Mycobacterium kansasii</i> and <i>Mycobacterium marinum</i> by Gas-Liquid Chromatographic Analysis of Cellular Fatty Acids. CHARLES O. THOEN, ALFRED G. KARLSON, AND RALPH D. ELLEFSON.....	1009

### Metabolism and Products

Bacterial Flocculation and Production of Poly- $\beta$ -Hydroxybutyrate. MARIA H. DEINEMA.....	857
Effect of Low-Roughage Diets on the Microflora and Lipid Metabolism in the Rumen. M. J. LATHAM, J. E. STORRY, AND M. ELISABETH SHARPE.....	871
Anticapsin, a New Biologically Active Metabolite: Screening and Assay Procedures. J. G. WHITNEY, SANDRA S. FUNDERBURK, J. E. WESTHEAD, D. H. LIVELY, J. M. SOLENBERG, AND JERRY W. DENNEY.....	907
Biodegradation of Ethylene Glycol by a Salt-Requiring Bacterium. CARLOS F. GONZALEZ, WILLARD A. TABER, AND M. A. ZEITOUN.....	911
Quantitation of the Bioenergetics of a Tuberculosis Infection in Chicks. R. L. SQUIBB, M. SOLOTOROVSKY, AND W. R. BEISEL.....	924
Physiological and Biochemical Changes Associated with Macroconidial Germination in <i>Microsporium gypseum</i> . B. C. DILL, T. J. LEIGHTON, AND J. J. STOCK.....	977

Thermostable Acid Protease Produced by <i>Penicillium duponti</i> K1014, a True Thermophilic Fungus Newly Isolated from Compost. HIKOTAKA HASHIMOTO, TAKASHI IWAASA, AND TAMOTSU YOKOTSUKA.....	986
Induction of Protoplasts of <i>Schizosaccharomyces octosporus</i> in a Defined Medium. CHRISTINE E. MACDONALD AND MARTHA D. BERLINER.....	993
Mutagenesis and Enrichment of Auxotrophs in <i>Penicillium chrysogenum</i> . PRAKASH S. MASUREKAR, MARC P. KAHGAN, AND ARNOLD L. DEMAIN.....	995
Microtitration of <i>Bacillus cereus</i> Hemolysin. JAMES C. COOLBAUGH, REUBEN D. WENDE, AND ROBERT P. WILLIAMS.....	997
Procedure and Analysis of a Useful Method in Determining Mycelial Dry Weights from Agar Plates. LEWIS M. SUTTON III AND MARVIN J. STARZYK.....	1011



# AUTHOR INDEX

## VOLUME 24

- Aaslestad, H. G., 37  
 Abbott, E. A., 859  
 Achanzar, David, 58  
 Adams, A. P., Jr., 296  
 Adams, D. M., 412, 418  
 Adler, H. E., 849  
 Agterberg, C. M., 127  
 Alexander, M., 424  
 Ammann, Arthur J., 679  
 Amsterdam, Daniel, 667  
 Anderson, A. W., 501  
 Anderson, Nan, 495  
 Anellis, Abe, 453  
 Arai, Tadashi, 768  
 Aris, R., 384  
 Arlinghaus, Ralph B., 488  
 Ash, Ronald J., 943  
 Atchison, Robert, 157
- Bacus, J. N., 405  
 Balows, A., 449  
 Barber, Lynn E., 891  
 Barry, A. L., 31, 240  
 Bass, Leslie R., 837  
 Bassir, O., 853  
 Beam, Walter E., Jr., 155  
 Bean, George A., 437  
 Becker, Maurice E., 714  
 Bedigian, Hendrick, 275  
 Beisel, W. R., 924  
 Belding, M. E., 691  
 Benner, E. Jack, 296  
 Berg, R. W., 501  
 Berkowitz, D., 453  
 Berliner, Martha D., 993  
 Berling, Carl, 389  
 Bettge, Carol L., 929  
 Bhadsavle, C. H., 699  
 Biddle, James W., 334  
 Biggs, D. R., 70  
 Birnbaum, J., 430  
 Blankenship, B. R., 248  
 Bodily, H. L., 165  
 Bolin, H. R., 146  
 Bollag, Jean-Marc, 750  
 Boykin, Elizabeth H., 778, 786  
 Bough, Wayne A., 226  
 Bradford, L. L., 26  
 Brasfeild, Helen, 349  
 Brown, David F., 599  
 Brown, R. W., 48  
 Brown, W. L., 226  
 Brown, William J., 899  
 Brunner, H., 521  
 Burgos, J., 497, 504  
 Burgos, Roger C., 591  
 Burmeister, H. R., 251  
 Busta, F. F., 412, 418
- Cabelli, V. J., 864  
 Cacciapuoti, A. F., 8  
 Cagle, G. D., 477  
 Calvert, J., 283  
 Cambier, J. C., 138  
 Carleton, Judith, 967  
 Carter, G. R., 162  
 Cavanaugh, Dan C., 202  
 Chang, Chuang-yi, 972  
 Chang, R. Shihman, 735  
 Chang, Y. T., 840  
 Chapman, S. Stephen, 160  
 Chappell, W. Adrian, 398  
 Chaudhary, R. K., 270  
 Cherry, William B., 334  
 Chiewsilp, Dumrong, 288  
 Cho, B. R., 299  
 Chun, Doki, 675  
 Ciegler, A., 114, 198  
 Cliver, D. O., 540  
 Coffey, E. M., 26  
 Cole, Francis E., Jr., 604  
 Cole, M., 660  
 Cole, R. J., 248  
 Cole, R. V., 525  
 Collins, E. B., 699  
 Copeland, Charles E., 567  
 Coolbaugh, James C., 997  
 Cornesky, Robert A., 157  
 Crawford, Don L., 150  
 Croom, John M., 334  
 Cucakovich, N. B., 506
- Dadisman, Thoburn A., Jr., 444  
 Daly, A. Kathleen, 409  
 DaMassa, A. J., 849  
 Darnell, Wayne L., 786  
 Daugherty, R. V., 378  
 Davis, N. D., 248  
 Dayton, Sandra L., 143  
 Debbie, J. G., 609  
 Deibel, R. H., 405  
 Deinema, Maria H., 857  
 DellaMonica, E. S., 618  
 Demain, A. L., 430  
 Demain, Arnold L., 995  
 Denney, Jerry W., 907  
 Dework, F. M., Jr., 834  
 Diener, U. L., 248  
 Dietrich, Glynn G., 561  
 Di Girolamo, Rudolph, 1005  
 Dill, B. C., 977  
 Doane, Frances W., 495  
 Donkersloot, J. A., 179  
 Doty, D. M., 226  
 Dougherty, Mary, 292  
 Dowdle, Walter R., 703  
 Dreesman, Gordon R., 1001
- Drew, W. Lawrence, 240  
 Dugan, Patrick R., 732  
 Duncan, Charles L., 801  
 Duncan, D. W., 933  
 Dunlap, W. G., 645  
 Dyett, E. J., 4
- Eacret, W. G., 318  
 Eagon, R. G., 763  
 Ederer, Grace Mary, 160  
 Edmonds, Paul, 213, 219  
 Edwards, J. F., 819  
 Eklund, M. W., 108  
 Ellefson, Ralph D., 1009  
 Elliker, P. R., 51  
 Engelman, Helen M., 22  
 England, Beatrice, 510  
 England, J. J., 727
- Fairchild, Glen A., 812  
 Faparusi, S. I., 853  
 Fay, G. D., 31  
 Feeley, John C., 628  
 Fishbein, Morris, 444  
 Fleming, R. W., 424  
 Frank, Hilmer A., 571  
 Frankenfeld, J., 283  
 Franti, C. E., 920  
 Funderburk, Sandra S., 907  
 Fung, Daniel Y. C., 755
- Galapon, Quirino, 389  
 Gamble, William C., 398  
 Gerber, Jay D., 191  
 Gilliland, S. E., 571  
 Goepfert, J. M., 341, 708  
 Goldberg, Leonard, 967  
 Golden, H. Dean, 735  
 Gonzalez, Carlos F., 911  
 Gonzales, Carmen, 516  
 Goodnow, Robert A., 555  
 Grosiak, Barbara, 567  
 Guinée, P. A. M., 127  
 Guskey, Louis E., 13  
 Gutierrez, C., 516  
 Gutnick, David, 363
- Halstead, Scott B., 328  
 Hamilton, P. B., 251  
 Hamilton, Rex L., 899  
 Hammon, William McD., 157  
 Hang, Y. D., 1007  
 Hanks, John B., 334  
 Hanssens, L., 831  
 Hardegree, M. Carolyn, 120  
 Harrison, Arthur P., Jr., 555  
 Hartman, Paul A., 508  
 Harvan, D., 34  
 Hashimoto, Hikotaka, 986



- Hearn, Walter R., 591  
Hedrick, H. G., 525  
Heed, Edward J., 286  
Hendricks, Charles W., 168  
Hensen, Sally A., 62  
Hernandez-Baumgarten, Eliseo M., 999  
Hetrick, Frank M., 18  
Hierholzer, John C., 398  
Hoepflich, P. D., 920  
Holder, Ian A., 213, 219  
Hollinger, F. Blaine, 1001  
Hollis, Dannie G., 772  
Hrubant, G. R., 369, 378  
Hsu, Ih-Chang, 684  
Huhtanen, C. N., 618  
Hunter, Jack A., 155  
Hutchinson, Harriet D., 742
- Inhorn, S. L., 264, 353  
Insalata, N. F., 645  
Isquith, B. J., 859  
Iwaasa, Takashi, 986
- Jackson, A. K., 4, 175  
Jansen, W. H., 127  
Jeansson, Stig, 96  
Johnson, William G., 444  
Jones, Robert D., 191  
Jones, Wallis L., 101
- Kahgan, Marc P., 995  
Kamiński, E., 721  
Kapica, L., 824  
Karlson, Alfred G., 1009, 1013  
Kaufman, Leo, 841  
Kaye, Harold S., 703  
Kenzy, S. G., 209  
Kilsby, D. C., 4  
Kim, H. U., 708  
Kim, Thomas H., 307  
King, A. D., Jr., 146  
Kirksey, J. W., 248  
Klarman, William L., 437  
Klebanoff, S. J., 691  
Koblet, Hans, 323  
Kohler, Ursula, 323  
Kominos, Spyros D., 567  
Kostenbader, K. D., Jr., 540  
Krichevsky, Micah I., 179, 184  
Kubica, George P., 307  
Kundsin, Ruth B., 665
- Lachica, R. V. F., 920  
Lago, B. D., 430  
Landschoot, R. L., 1007  
Larsen, Sandra A., 101  
Larson, K. A., 727  
Latham, M. J., 871  
Lazarus, A. W., 525  
Lee, Tsun K., 714  
Lee, Wie-Shing, 1  
Lee, Yhu-Hsiung, 409
- Leighton, T. J., 977  
Leistner, L., 114  
Levin, M. A., 864  
Levitt, Neil H., 91  
Lewis, Vester J., 8, 22  
Libbey, L. M., 721  
Lillehoj, E. B., 198  
Liston, J., 1005  
Lively, D. H., 1010  
Loesche, Walter J., 638  
Lorian, Victor, 44  
Lucas, G. B., 34  
Lum, Norma A., 571  
Lumpkins, Earl D., Sr., 499
- McCamish, Joan, 658  
McCormick, David P., 389  
McCown, Jack M., 288  
McCoy, Elizabeth, 150  
MacDonald, Christine E., 993  
McFeters, Gordon A., 805  
McIlroy, Gary T., 358  
McLaughlin, David, 841  
MacMillan, Bruce G., 213, 219  
Macmoline, H. G., 506  
Macrae, I. C., 819  
Mahnke, C. W., 645  
Maisch, W. F., 717  
Maloney, Clifford J., 120  
Mangiafico, Joseph A., 202  
Marchette, Nyven J., 328  
Marshall, John D., Jr., 202  
Martin, Jonathan D., 575  
Martin, William J., 358  
Masurekar, Prakash S., 995  
Matches, J., 1005  
Mehlman, Ira J., 444  
Meek, E. S., 138  
Melnick, Joseph L., 1001  
Merkal, R. S., 205  
Midura, T. F., 165  
Mikami, Yuzuru, 768  
Milburn, M. S., 198  
Miller, L. Lenkart, 878  
Mills, Cretyl C., 307  
Mills, Stacey M., 778  
Mintzlafl, H.-J., 114  
Mishra, L., 735  
Mitzel, John R., 155  
Mogabgab, William J., 760  
Molar, Roger E., 972  
Molenda, John R., 444  
Moncada F., Luz H., 132  
Moore, J. H., 248  
Morris, George K., 846  
Moss, C. Wayne, 596  
Mundt, J. Orvin, 575  
Munube, G. M. R., 939  
Murlin, Alma M., 334  
Murphy, J. R., 283  
Mutanda, L. N., 939  
Myers, Martin G., 62
- Naghski, J., 618  
Naritomi, L. S., 26, 885  
Nash, Donald R., 328  
Naso, R. B., 488  
Nelson, D. B., 264, 353  
Nelson, F. Eugene, 236  
Nolan, Richard A., 290  
Nolan, William G., 290  
Nygaard, G. S., 165
- O'Leary, Virginia S., 545  
Olitzky, I., 208  
Oliver, R. J., 70  
Ong, Suat Bee, 703  
Ordal, Z. John, 878  
Ordóñez, J. A., 497  
O'Toole, Richard, 240  
Owens, Robert G., 34
- Page, W. J., 650  
Park, Cheong Kyu, 675  
Parisius, W., 506  
Pearson, G., 837  
Pedersen, Carl E., Jr., 91, 604  
Peeler, James T., 958  
Pelger, Robert J., 679  
Pero, R. W., 34  
Pfister, R. M., 477  
Phair, John P., 967  
Phillips, Fred A., 958  
Pine, Leo, 841  
Pittman, Margaret, 120  
Pollock, Beatrice, 760  
Poole, George M., 281, 663  
Popoola, Bodun, 44  
Porsche, Jules D., 226  
Postic, Bosko, 567  
Poysky, F. T., 108  
Premi, L., 51  
Previte, Joseph J., 535
- Quirin, E. P., 264, 353  
Quist, Kenneth D., 398
- Ray, B., 258, 585  
Razzell, W. E., 933  
Reddy, M. S., 947, 953  
Reeves, Michael W., 841  
Reid, Ann, 571  
Reid, William, 184  
Reinbold, G. W., 947, 953  
Reisfeld, Abraham, 363  
Reiter, B., 613  
Restrepo M., Angela, 132  
Rhoden, D. L., 449  
Rhodes, R. A., 369, 378  
Ribelin, William E., 684  
Richards, W. D., 205, 318  
Richter, Marian W., 667  
Rigdon, R. H., 634  
Riha, William E., Jr., 544  
Riley, P. S., 798  
Riley, Richard E., 191  
Robinson, David M., 604

- Robrish, Stanley A., 179, 184  
 Rogers, A. H., 294  
 Röhr, M., 521  
 Rolinson, G. N., 660  
 Rose, Leslie I., 665  
 Rose, Michael J., 153  
 Rosenberg, Eugene, 363  
 Roslycky, E. B., 844
- Sala, F. J., 497, 504  
 Samuels, S. B., 596  
 Sandine, W. E., 51  
 Sandler, Sandra T., 571  
 Sangar, Vijay K., 732  
 Santo, Leatrice M., 571  
 Sather, Gladys E., 157  
 Sauer, R. L., 131  
 Schadewald, T., 634  
 Scherer, R. K., 48, 920  
 Schillinger, John A., 437  
 Seol, Sung Yong, 675  
 Sevoian, Martin, 275  
 Shah, Prafull C., 658  
 Shaparis, A. B., 1003  
 Sharpe, A. N., 4, 70, 175  
 Sharpe, M. Elisabeth, 613, 871  
 Shaw, C. E., 824  
 Shehata, T. E., 699  
 Sherris, John C., 240  
 Shuler, M. L., 384  
 Silva, M. T., 463  
 Silverman, Gerald J., 561  
 Skaliy, Peter, 763  
 Slocum, Donald R., 91  
 Slotnick, Irving J., 292  
 Smalley, E. B., 684  
 Smith, P. B., 449  
 Smith, Rodney F., 143, 929  
 Smith, Thomas F., 148  
 Smittle, R. B., 551  
 Snow, J. P., 34  
 Solberg, Myron, 544  
 Solenberg, J. M., 907  
 Solotorovsky, M., 924  
 Somers, Eileen B., 801  
 Sousa, J. C. F., 463  
 Speck, M. L., 258, 551, 585  
 Spina, Celsa A., 735  
 Spira, W. M., 341  
 Splittstoesser, D. F., 1007
- Squibb, R. L., 924  
 Stanley, W. L., 146  
 Starzyk, Marvin J., 1011  
 Stawicki, S., 721  
 Steele, Carolyn D., 846  
 Stenhouse, Andrew C., 328  
 Sterner, P. W., 581  
 Stock, J. J., 650, 977  
 Storry, J. E., 871  
 Strojan, C., 453  
 Strong, F. M., 684  
 Stuart, David G., 805  
 Stutzenberger, Fred J., 77, 83  
 Suskind, Raymond R., 213, 219  
 Sutton, Lewis M., III., 1011  
 Swantak, W., 453  
 Syed, Salam A., 638  
 Syrewicz, James J., 488
- Taber, Willard A., 911  
 Tak, Ryunbin, 675  
 Tatum, H. W., 798  
 Tauraso, Nicola M., 62  
 Taylor, Welton I., 58  
 Thacker, W. Lanier, 8, 22  
 Thoen, Charles O., 1009  
 Thomason, Berenice M., 334  
 Thurston, Pauline, 409  
 Tilton, R. C., 283  
 Ting, Michael N., 755  
 Tomfohrde, K. M., 449  
 Tompkin, R. B., 1003  
 Trimarchi, C. V., 609  
 Troller, John A., 440  
 Tsang, Joseph C., 972  
 Tsuchiya, H. M., 384  
 Turner, W., 837  
 Twedt, Robert M., 599
- Underwood, Richard H., 665
- van Hemert, P. A., 506  
 Van Nevel, C. J., 513  
 Van Regenmortel, A., 831  
 van Wezel, A. L., 506  
 Vedamuthu, E. R., 947, 953  
 Vela, G. R., 477  
 Verachttert, H., 831  
 Vervaeke, I. J., 513
- Vincent, Monroe M., 62
- Wachsmann, J. T., 717  
 Walters, P. A., 859  
 Wang, C. S., 488  
 Ware, John D., 943  
 Warren, Edward, 1013  
 Washam, C. J., 947, 953  
 Washington, Joan A., II, 358  
 Washington, John A., II., 1013  
 Wasowicz, E., 721  
 Watanakunakorn, Chatrechai, 967  
 Watson, R. E., Jr., 727  
 Watson, Robert J., 561  
 Weaver, R. E., 596, 798  
 Weaver, Robert E., 772  
 Weber, Judith A., 508  
 Weeks, B. A., 251  
 Weinberger, Martin, 750  
 Weisleder, D., 114  
 Wells, Joy G., 846  
 Welty, Ronald E., 518  
 Wende, Reuben D., 997  
 Wentz, Barry, 444  
 Westhead, J. E., 907  
 Westwood, J. C. N., 270  
 Whitney, J. G., 907  
 Whittemore, A. D., 671  
 Wiggins, Geraldine L., 772  
 Wiktor, T. J., 37  
 Wilkins, Judd R., 778, 786  
 Wilkinson, Hazel W., 669  
 Williams, J. E., 671  
 Williams, Robert H., 591  
 Williams, Robert P., 591, 997  
 Wolf, Paul A., 581  
 Wolff, David A., 13  
 Wolford, Ronald G., 18  
 Wong, K. H., 628  
 Wood, R. M., 26, 165, 885  
 Woods, Larry L., 148  
 Wyatt, R. D., 251  
 Wyler, Robert, 323
- Yang, Charles Y., 885  
 Yokotsuka, Tamotsu, 986  
 Yu, Pauline K. W., 358
- Zeitoun, M. A., 911  
 Ziegler, Donald W., 742

# SUBJECT INDEX

## VOLUME 24

- Acetyl-methyl-carbinol
  - Enterobacteriaceae* identification, 618
- Acid protease
  - P. duponti*-produced, 986
- Adenosine triphosphate
  - repair of freeze-injury in *E. coli*, 585
- Adenovirus
  - agglutination of erythrocytes, 939
  - infected oropharyngeal cells, 389
  - isolation and vaccine studies with, 760
  - production of antisera, 398
  - recovery by protamine sulfate treatment, 510
- Adjuvant
  - vitamin A, with *A. hinshawii* bacterin, 849
- Aerobic bacteria
  - recovery in Amies Transport Medium, 31
- Aflatoxin
  - in soybeans, 437
  - production after treatment with bleach, 885
- Agar diffusion method
  - negative staining of microbial suspensions, 495
- Agar gel diffusion
  - plates, staining and preserving
- Agar-gel immunodiffusion test
  - paracoccidioidomycosis, 132
- Agar-gel precipitin inhibition test
  - antibody detection to *Y. pestis*, 202
- Agglutination-inhibition test
  - mycobacterial, 318
- Air flowmeter
  - device for eliminating oil condensation in the, 840
- Alkoxysilane
  - antimicrobial activity, 859
  - Si-QAC, 859
- Alkyl-benzene-sulfonate
  - bacterial degradation, 555
- Alkyl-ethoxylate-sulfate
  - bacterial degradation, 555
- Alternaria tenuis*
  - larvicidal activity, 660
- Aluminum phosphate gel adsorption
  - rabies virus vaccines, 37
- Amies Transport Medium
  - recovery of aerobia and anaerobic bacteria, 31
- Amino acid decarboxylation
  - Enterobacteriaceae* identification, 618
- <sup>14</sup>C-Amino acids
  - uptake and assimilation, 977
- Ammonium sulfate precipitation
  - rabies virus vaccine, 37
- Amphotericin B
  - fungal growth inhibition, 205
- Anacystis nidulans*
  - polysaccharide, 732
- Anaerobes
  - techniques for total count, 513
- Anaerobic bacteria
  - recovery in Amies Transport Medium, 31
- Anaerobic ringed-plate technique
  - comparison of methods for total count, 513
- Androstenedione
  - Pseudomonas* sp.-mediated steroidal conversion, 665
- Antibiotic assays
  - tabletop computer, 296
- Anticapsid
  - screening and assay procedures, 907
- Anti-deoxyribonucleic acid antibody
  - microvolume system, 208
- Antigen
  - isolation from yeast phase of *H. capsulatum*, 841
- Antiproteinases
  - removal with rivanol, 48
- API system
  - Enterobacteriaceae* identification, 449
- Aquafloc, 418
  - flocculation of oysters for enterovirus recovery, 540
- D-Arabitol
  - production in *M. tomentosa*, 831
- Arbovirus
  - antibodies, 288
- Arizona
  - growth in river water, 168
- Arizona arizonae*
  - growth in river water, 168
- Arizona hinshawii*
  - bacterin, adjuvant effect, 849
- Aspergillus flavus*
  - aflatoxin production, 885
  - identification of volatiles produced by, 721
- Aspergillus* sp.
  - isolated from flue-cured tobacco, 518
- Aspergillus* spp.
  - aflatoxin-producing strains, 437
- Aspergillus versicolor*
  - versimide production, 660
- Atomic absorption
  - elemental analysis of Casamino Acids, 290
- Automatic agar inoculator, 778
- Auxotrophs
  - mutagenesis and enrichment in *P. chrysogenum*, 995
- Azide
  - freeze-injury in *E. coli*, 585
- Azotobacter*
  - staining of extracellular polymer, 477
- Bacillus*
  - identification by an FA technique, 708
  - staining of extracellular polymer, 477
- Bacillus cereus*
  - heat-induced changes, 463

- heat resistance of spores, 497
- identification by an FA procedure, 708
- ileal loop test, 341
- microtitration of hemolysin, 997
- ultrastructural alterations, 463
- Bacillus licheniformis*
  - heat-resistance of spores, 497
- Bacillus megaterium*
  - cultivation, 226
  - single-cell protein production, 226
  - strain KM:T<sup>-</sup>R<sub>1</sub> properties, 717
  - thymineless strains, 717
- Bacillus* spp.
  - ileal loop test, 341
- Bacillus subtilis*
  - heat activation of spores, 418
  - heat injury of spores, 412
  - thermal injury and recovery, 878
- Bacteriocin
  - production by *S. mutans*, 294
  - typing, 294
- Bacteriophage
  - typing scheme for *S. marcescens*, 899
- Bacterium
  - biodegradation of ethylene glycol, 911
- Beta hemolysis
  - pneumococci production, 44
- Bioenergetics
  - tuberculosis infection, 924
- Blue crab
  - bacteriological survey of the industry, 958
- Botulism
  - outbreak of type F, 165
- Butyrovibrios
  - reaction to antisera against *Salmonella* serotypes, 613
- Butyrovibrio* spp.
  - low-roughage diets, 871
- Candida utilis*
  - pH levels of plating medium, 236
- Casamino Acids
  - elemental analysis of vitamin-free, 290
- Catalase activity
  - psychophilic bacteria, 571
- Catalase test
  - Enterobacteriaceae* identification, 58
- Cat-Floc
  - flocculating oysters for enterovirus recovery, 540
- Caulobacter* sp.
  - adsorption of iron, 819
- Cellobiose
  - product of cellulase, 83
- Cellulase
  - nutritional requirements for production, 77
  - purification of components, 83
  - S. thermophilus*, 150
  - T. fusca*, 150
- Cellulose
  - degradation by *Thermomonospora curvata*, 77
- CETCH agar
  - pseudomonads, isolation and enumeration, 544
- Cetrimide
  - medium for isolation and enumeration of pseudomonads, 44
- CH3563
  - medium for isolation and enumeration of pseudomonads, 544
- Chlamydia
  - identification, 8
- Chlamydial antibodies
  - complementation test, 22
  - indirect hemagglutination test, 22
- Chlamydia psittaci*
  - immunofluorescence detection, 8
- Chlorbromuron
  - degradation by *Rhizoctonia solani*, 750
- Chlorine
  - resistance of poliovirus I and coliphages f2 and T<sub>3</sub>, 658
- Chromatography
  - VEE virus strains, 91
- Chromic chloride
  - treated human red blood cells, 679
- Chromogenesis mirabilis
  - S. griseus*, 768
- Citrobacter*
  - distribution in forests and farm products, 933
  - isolation of Vi antigen, 628
- Clostridium*
  - isolation and identification of psychophilic species, 699
- Clostridium botulinum*
  - isolation from venison jerky, 165
  - radiation resistance, 453
  - spores, radiometric detection, 535
  - types A and B spores, 453
  - types C and D, 108
  - types E and F, 165
- Clostridium hastiforme*
  - isolation, identification, and characteristics, 699
- Clostridium perfringens*
  - growth on roast beef at various temperatures, 599
  - medium for growth and sporulation, 755
  - spores, radiometric detection, 535
  - sporulation in meats, 834
  - quantitation of type A enterotoxin, 801
- Cloxacillin
  - detection, 240
- Coliform bacteria
  - survival in natural waters, 801
- Coliphage f2
  - chlorine resistance, 658
- Coliphage T<sub>2</sub>
  - chlorine resistance, 658
- Collagen
  - utilization of by-products, 226
- Colorimetric techniques
  - elemental analysis of Casamino Acids, 290
- Complementation test
  - chlamydial antibodies, 22
- Complement dilution procedure
  - CF antigen elution profiles, 157
- Complement fixation test
  - automated, 208

- detection of antibody to *Y. pestis*, 202  
elution profiles of dengue-2 virus, 157  
histoplasmosis diagnosis, 191
- Conidia  
collection, 504  
mass production, 504
- Coronavirus  
229E antibody detection, 703
- Corynebacterium pseudodiphtheriticum*  
adsorption of iron, 819
- Counter-immuno-electrophoresis  
hepatitis B antigen detection, 1001
- Counting technique  
bacteria, 4
- Crabmeat  
sanitation inspections of processing plants, 958
- Crassostrea virginica*  
enterovirus recovery, 540
- Cryptococcus neoformans*  
pigment production by phenoloxidase activity, 824
- C<sub>2</sub> toxin  
production by using trypsin, 108
- Cyanide  
freeze-injury in *E. coli*, 585
- Cycloheximide  
fungal growth inhibition, 205
- D-broth  
identification of group D enterococci, 1
- Dengue viruses  
recovery, 328
- Deoxyribonucleic acid  
antibody detection, 208  
determination with ethidium bromide, 179  
fluorometric determination, 179  
MAD microslide technique, 920  
psychrophilic bacteria, 571
- Dermatophytes  
pleomorphic strains, induced sporulation, 650
- Detergents  
bacterial degradation, 555  
bacterial growth in a polluted stream, 349
- Dextran sulfate-calcium chloride method  
removal of nonspecific inhibitors, 264
- 2,2-Dibromo-3-nitrilopropionamide  
use as a slimicide, 581
- Dimethylselenide  
formation by a *Penicillium* strain, 424
- Dimethyltelluride  
formation by a *Penicillium* strain, 424
- Droplet technique  
aids, 4  
bacterial counting, 4
- Eastern equine encephalomyelitis virus  
VEE vaccine, 604
- Edwardsiella tarda*  
contamination of fish products, 501
- Electroimmunodiffusion  
quantitation of *C. perfringens* enterotoxin, 801  
Vi antigen measurement, 628
- Electron microscopy  
ultrastructural alterations of *B. cereus*, 463  
virus detection from stool, 270
- Enteric bacteria  
growth rates, 168
- Enterobacter*  
distribution in forests and farm products, 933
- Enterobacter aerogenes*  
growth in river water, 168
- Enterobacteria  
feedlot waste and runoff, 378
- Enterobacteriaceae*  
growth with erythritol, 292  
identification, 58  
identification by API system, 449  
identification by R-B system, 358  
microfermentation identification series, 618
- Enterococci  
group D, 1  
dissemination by insects, 575  
identification of group D, 1
- Enterotoxin  
quantitation of *C. perfringens* type A, 801  
pH and oxygen tension on formation, 891  
type A, 891
- Enterotoxin A  
effect of water activity, 440
- Enterotoxin B  
*S. aureus* secretion of, 561
- Enteroviruses  
agglutination of erythrocytes, 939  
recovery by polyelectrolyte flocculation, 540
- Enzymes  
activity for polysaccharide formation, 184
- Equine antisera  
production, 398
- Equine sarcoids  
cultural characteristics of a cell line, 727
- Erythritol  
*S. marcescens* growth, 292
- Erythrocytes  
agglutination by adenoviruses, reoviruses, and enteroviruses, 939  
human, in rubella HI test, 353
- Escherichia*  
distribution in forests and farm products, 933
- Escherichia coli*  
adsorption of iron, 819  
freeze-injury repair, 258  
growth in river water, 168  
indirect radioimmunoassay, 742  
metabolic process during repair of freeze-injury, 585  
MU9 ds-RNA, 430  
O antigen typing, 127
- Esterase  
simultaneous detection with proteinase, 516
- Ethidium bromide  
determination of DNA, 179
- Ethylene glycol  
biodegradation by a salt-requiring bacterium, 911
- Fatty acid  
composition of *Pseudomonas*, 596  
gas-liquid chromatographic analysis, 1009

- Feedlot waste  
  enterobacteria, 378  
  microbial population, 369
- Flocculation  
  poly- $\beta$ -hydroxybutyrate, 857
- Fluorescence  
  determination of DNA, 179
- Fluorescent-antibody test  
  adenovirus-infected oropharyngeal cells, 389  
  *B. cereus* identification, 708  
  *Chlamydia psittaci*, 8  
  fixing, staining, and rinsing of tissue cultures, 281  
  salmonellae detection in surface waters, 334  
  *Salmonella* in food and feeds, 645  
  standardization for diagnosis of rabies, 609  
  validity of spinal cord for rabies diagnosis, 714
- Fluorescent treponemal antibody-absorbed test  
  syphilis, 26
- Freeze-injury  
  *E. coli* requirements for repair of, 258  
  repair in *E. coli*, 585
- Freund adjuvant  
  effect on animals, 634
- Fungi  
  chlorbromuron degradation, 750  
  diagnosis by plate-slide technique, 667  
  isolated from flue-cured tobacco, 518  
  mycelium-forming, improved control of, 521  
  *P. duponti*-produced thermostable acid protease, 986
- Fusariotoxin T-2  
  moldy corn toxicosis, 251  
  oral lesions, 251
- Fusarium lateritium*  
  larvicidal activity, 660
- Fusarium tricinctum*  
  alimentary toxic aleukia, 251
- $\beta$ -Galactosidase  
  *Lactobacillus* sp., 51
- Gas-liquid chromatography  
  differentiation of *Mycobacterium* sp., 1009
- Gastroenteritis  
  *V. parahaemolyticus*, 444
- Gas-volume measurement  
  antimicrobial compound effectiveness, 146
- Gelatinase  
  *Salmonella* contamination analysis, 153
- Germination  
  nucleic acid synthesis, 977  
  protein inhibitors, 977
- Germination system  
  identification, heat injury of *B. subtilis* spores, 412
- $^{14}$ C-Glucose  
  uptake and assimilation, 977
- Glycerin  
  inhibitory effect on *V. parahaemolyticus* and *Salmonella*, 675
- Gram-positive bacteria  
  determination of DNA in, 179
- Gram-negative bacilli  
  identification by three-tube method, 409
- Gram-negative bacteria  
  determination of DNA in, 179
- Gram-negative rod  
  isolation, 772
- Halobacterium halobium*  
  detection of proteinase and esterase, 516
- Halobacterium* sp.  
  detection of proteinase and esterase activities, 516
- Heat injury  
  *B. subtilis* spores, 412
- HeLa cell  
  susceptibility to HVT, 275
- Hemagglutination inhibition test  
  nonspecific agglutinin removal in rubella, 264
- Hemispora stellata*  
  conidia production and collection, 504
- Hemolysin  
  microtitration of *B. cereus*, 997
- Hepatitis B  
  antigen detection, 1001
- Herpes simplex virus  
  differentiation between types 1 and 2, 96
- Herpesvirus  
  growth characteristics, 943  
  -infected Hamster cells, 275
- Histoplasma capsulatum*  
  isolation of soluble antigen, 841
- Histoplasmosis  
  CF test, 191  
  Microtiter latex agglutination test, 191
- HN isolate  
  isolation and characterization, 299
- H<sub>2</sub>S  
  *Enterobacteriaceae* identification, 618
- Hyaluronic acid capsule  
  detection of compounds inhibiting formation, 907
- Hydrodynamic focusing technique  
  sizing of bacterial populations, 384
- Ileal loop test  
  *B. cereus* food poisoning, 341
- Immunoelectrophoresis  
  differentiation between HSV types 1 and 2, 96
- Immunoglobulin G  
  listeria antibodies, 101
- Immunoglobulin M  
  listeria antibodies, 101
- Incubation method  
  for improved cell dispersal method, 506
- Indirect fluorescent-antibody test  
  paracoccidioidomycosis, 132
- Indirect hemagglutination test  
  antibody determination to pneumococcal polysaccharides, 679  
  chlamydial antibodies, 22  
  coronavirus 229E antibody detection, 703  
  detection of antibody to *Y. pestis*, 202  
  *P. multocida* identification, 162



- Indole  
  *Enterobacteriaceae* identification, 618
- Inhibitors  
  method for removal of nonspecific, 264
- Interferon  
  assay by inhibition of viral RNA synthesis, 323  
  production by human cells, 735
- Interferon inducer  
  MU9 ds-RNA, 430
- Iron  
  adsorption by bacteria, 819
- Irradiation  
  poliovirus inactivation in shellfish, 1005
- Isopycnic centrifugation  
  purification of poliovirus, 13
- K<sub>2</sub>HPO<sub>4</sub>  
  repair of freeze-injury in *E. coli*, 585
- Kirby-Bauer method  
  methicillin-resistant strains of *S. aureus*, 240
- Klebsiella*  
  biotypes among coliforms, 933
- Klebsiella pneumoniae*  
  adsorption of iron, 819
- Lactic acid  
  bacteria producing, 871
- Lactic streptococci  
  agar medium for differential enumeration, 947  
  associative growth studies in three-strain mixtures, 953
- Lactobacillus bulgaricus*  
  liquid nitrogen freezing, 551
- Lactobacillus* sp.  
  lactose-hydrolyzing enzymes, 51
- Latex agglutination test  
  histoplasmosis diagnosis, 191  
  tuberculosis diagnosis, 525
- Leuconostoc*  
  staining of extracellular polymer, 477
- Leukocytes  
  effect of SPS, 691
- Lipid  
  content in *S. marcescens*, 972  
  metabolism during avian TB, 924  
  metabolism in the rumen, 871
- Listeriosis  
  diagnostic test, 101
- Marek's disease herpesvirus  
  HN isolate, 299
- Membrane-filter chambers  
  bacterial survival, 805
- Membrane filter technique  
  *P. aeruginosa* enumeration, 864
- Metabolite  
  anticapsin, 907  
  insecticidal properties, 660
- Metachromatic agar-diffusion microslide technique  
  assay for staphylococcal nuclease, 920
- Methicillin  
  resistant strains of *S. aureus*, 240
- 2-Methyl-3-amyl-6-methoxy-prodigiosene  
  identification from *S. marcescens* mutant pairs, 591
- Microbial assays  
  vitamins, 286
- Microbial dispersion  
  crude oil, kinetics, 363
- Micrococcus* sp.  
  adsorption of iron, 819  
  proteinases, 48
- Micrococcus* antiproteinases  
  removal of nonspecific antiproteinases, 48
- Microfermentation tests  
  *Enterobacteriaceae* identification, 618
- Microflora  
  composition after low-roughage diets, 871  
  *S. gabonensis* on palm wine, 853
- Microhemagglutination assay for *Treponema pallidum* antibodies test  
  syphilis, 26
- Microsporum gypseum*  
  initiation of sporulation by increased aeration, 650  
  macroconidial respiration, 977
- Microtechnique  
  serotyping of *E. coli*, 127
- Microtest plates  
  collecting and shipping sera, 671
- Microtitration  
  *B. cereus* hemolysis, 997
- Microvolume system  
  anti-DNA antibody detection, 208  
  CF antigen detection, 208
- Moniliella tomentosa*  
  polyol production in, 831
- Mouse ascitic fluid  
  clot formation, 288
- Multi-well plates  
  serological screening of *Salmonella* cultures, 846
- MU9 mutant  
  ds-RNA production, 430
- Murine leukemia virus  
  replication in rat C-type infected cells, 837
- Mycelium  
  method for determining dry weights from agar plates, 1011
- Mycobacteria  
  antifungal antibiotics in primary cultures, 205  
  inhibition of fungal growth, 205  
  long-term preservation, 311  
  long-term storage, 311
- Mycobacterium*  
  in oral cavity and sputum, 307
- Mycobacterium avium*  
  mycobacterial agglutination-inhibition test, 318
- Mycobacterium butyricum*  
  in Freund adjuvant, 634
- Mycobacterium intracellulare*  
  in oral cavity and sputum, 307  
  mycobacterial agglutination-inhibition test, 318
- Mycobacterium phlei*  
  adsorption of iron, 819
- Mycobacterium kansasii*  
  differentiation by fatty acid analysis, 1009

- Mycobacterium marinum*  
differentiation by fatty acid analysis, 1009
- Mycobacterium tuberculosis*  
antibody detection, 525
- Mycoplasma*  
elimination from virus stocks, 18  
inactivation by nonionic detergents, 18
- Mycoplasma pneumoniae*  
identification with tetrazolium agar, 148
- Nafcillin  
detection, 240
- Negative staining  
agar diffusion method, 495
- Neisseria meningitidis*  
growth, 155
- Nitrite burn  
in fermented sausage, 405
- Nitrobacter* sp.  
preparation of silica gel media, 844
- Nitrogen  
liquid, freezing of *L. bulgaricus*, 551
- Nitrosomonas* sp.  
preparation of silica gel media for, 844
- Nonionic detergents  
*Mycoplasma* elimination, 18
- Nystatin  
fungal growth inhibition, 205
- Olivetti Underwood Program, 101  
antibiotic assays, 296
- Oropharyngeal cells  
pathology of adenovirus-infected, 389
- Ostrea edulis*  
enterovirus recovery, 540
- Oxacillin  
detection, 240
- Oxyethylene docosanols  
evaporation retardation, 508
- Oxygen  
tension, effect on toxin formation, 891
- Palm wine  
microflora, growth inhibition, 853
- Panleucopenia virus  
stability, stored in liquid phase, 663
- Paracoccidioidomycosis  
serological diagnosis, 132
- Paravaccinia virus  
quantitative assay, 138
- Pasteurella multocida*  
identification of capsular antigens, 162  
type A strains, 162
- Penicillic acid  
detoxification, 114  
effect of gases and temperature, 198  
in tobacco and smoke condensate, 34  
mold-fermented sausage, 114  
production, 114, 198
- Penicillium*  
dimethylselenide and dimethyltelluride formation, 424  
penicillic acid production, 114
- Penicillium chrysogenum*  
auxotroph mutagenesis and enrichment, 992
- Penicillium duponti*  
acid protease, thermostable, 986
- Penicillium marlandii*  
control of development, 198  
effects of gases and temperature, 198
- Penicillium* sp.  
isolated from flue-cured tobacco, 518
- Penicillium verruculosum*  
tremorgenic toxin, 248
- Petroleum  
dispersion in sea water, 363  
microbial degradation, 363
- pH  
bacterial growth in a polluted stream, 349  
effect on staphylococcal growth, 891  
survival of sublethally stressed yeasts, 236
- Phenoloxidase activity  
pigment production by *C. neoformans*, 824
- $\beta$ -D-Phosphogalactoside galactohydrolase  
*Lactobacillus* sp., 51
- Pigment  
production by phenoloxidase activity of *C. neoformans*, 824
- Plate-slide technique  
diagnosis of fungi, 667
- Plethysmograph  
respiratory frequency and tidal volume of mice, 812
- Pneumococcal polysaccharide  
method for quantitation of serum antibody, 679
- Pneumococci  
beta hemolysis production, 44
- Poliovirus  
concentration, 13  
inactivation of by gamma irradiation, 1005  
purification, 13
- Poliovirus I  
chlorine resistance, 658
- Polyacrylamide gels  
rhodanese activity, 283
- Polyelectrolyte  
flocculation for enterovirus recovery, 540  
virus detection from stool, 270
- Poly- $\beta$ -hydroxybutyrate  
production, 857
- Polyol  
production in *M. tomentosa*, 831
- Polysaccharide  
*A. nidulans*-produced, 732  
antibody determination to pneumococcal, 679  
composition, 184  
formation in *S. mutans*, 184  
staining of extracellular, 477
- Pour-plate count  
automatic system, 70
- Prodigiosenes  
separation of, 591
- Prodigiosin  
identification, 591
- $\beta$ -Propiolactone

- inactivation in rabies virus concentrates, 37
- Propionic acid  
bacteria producing, 871
- Protamine sulfate  
recovery of reoviruses, adenoviruses, and enteroviruses, 510
- Protein  
production of single-cell, 226
- Proteinase  
simultaneous detection with esterase, 516
- Proteus*  
growth in river water, 168
- Proteus rettgeri*  
growth in river water, 168
- Protoplasts  
*S. octosporus*, induction, 993
- Pseudomonads  
medium for isolation and enumeration, 544  
psychrophilic, grown at 2 and 30 C, 571
- Pseudomonas aeruginosa*  
combined typing methods, 219  
epidemiology, 213, 219  
isolated from vegetables, 567  
mPA procedure for enumeration, 864  
physiological age and state on survival, 763  
pyocin typing methods, 213, 219  
survival of desiccated, 763  
typing methods, 213
- Pseudomonas fluorescens*  
adsorption of iron, 819
- Pseudomonas putrefaciens*  
isolates from clinical specimens, 798
- Pseudomonas* sp.  
17-dehydrogenase activity, 665  
fatty acid composition, 596
- Pseudomonas taetrolens*  
potato aroma of lamb carcasses, 1003
- Psychrophilic bacteria  
properties when grown at 2 and 30 C, 571  
RNA, DNA, and protein content, 571
- Pyocin typing method  
*P. aeruginosa*, 213, 219
- Rabies  
spinal cord examination as substitute procedure for diagnosis, 714  
standardization of FA test, 609
- Rabies virus  
vaccines, recovery of protective activity, 37
- Radioimmunoassay  
diagnostic serology, 742
- Radiometric techniques  
food-borne bacteria, 535
- R antigens  
in groups A, B, and C streptococci, 669
- Rat C-type virus  
MLV replication in infected cells, 837
- R-B system  
*Enterobacteriaceae* identification, 358
- Reovirus  
agglutination of erythrocytes, 939  
recovery by protamine sulfate treatment, 510
- Rhizoctonia solani*  
chlorobromuron degradation, 750
- Rhodanese activity  
polyacrylamide gels, 283
- Ribonucleic acid  
fermentation process for double-stranded, 430  
murine tumor viruses, 488  
psychrophilic bacteria, 571  
synthesis, *B. subtilis* thermal injury, 878  
viral synthesis, inhibition of, 323
- Rivanol  
removal of antiproteinases, 48  
separation of antiproteinases, 48
- Roll-tube method  
comparison of techniques for total count of anaerobes, 513
- Rubella  
HI test, 353
- Saccoglossis gabonensis*  
microflora of palm wine, 853
- Salmonella*  
containing antigen O4, 813  
growth in river water, 168  
improved FA method, 645  
inhibitory effect of glycerin, 675  
isolation procedures, 153  
method for screening stool cultures, 409  
plastic multi-well plates for serological screening, 846
- Salmonellae*  
contamination of fish products, 501  
pollution index, 334  
serotypes in surface waters, 334
- Salmonella enteritidis*  
growth on roast beef at various temperatures, 599
- Salmonella typhimurium*  
radiometric detection, 535
- Sampling method  
stomaching, 175
- Sauerkraut  
waste, medium for cultivating yeasts, 1007
- Schizosaccharomyces octosporus*  
protoplast induction, 993
- Selenium  
methylation of, 424
- Semliki Forest virus  
-RNA synthesis, 323
- Serotyping  
*E. coli* cultures, 127
- Serratia marcescens*  
antibiotic-resistant and -sensitive strains, 972  
growth with erythritol, 292  
lipid content of strains Bizio and O8, 972  
phage typing, 899  
prodigiosin pigment from mutant pairs, 501
- Shigella*  
method for screening stool cultures, 409
- Shigella flexneri*  
growth in river water, 168
- Shigella* spp.  
growth in river water, 168
- Silica gel  
procedure for preparation, 844

- Simian hemorrhagic fever  
   epizootic, 62  
 Simian hemorrhagic fever viruses  
   isolation, 62  
 Slimicide  
   DBNPA, 581  
 Sodium chloride  
   *N. meningitidis* growth, 155  
 Sodium fluoride  
   on antimicrobial systems in blood, 691  
 Sodium hypochlorite  
   detoxification of aflatoxins, 885  
 Sodium polyanetholesulfonate  
   on antimicrobial systems in blood, 691  
 Spinal cord  
   examination, substitute procedure for rabies  
   diagnosis, 714  
 Spores  
   heat activation of *B. subtilis*, 418  
   heat injury of *B. subtilis*, 412  
   heat resistance of *B. cereus*, 497  
   heat resistance of *B. licheniformis*, 497  
 Sporulation  
   *C. perfringens* strains, 755  
   *C. perfringens* type A, 834  
   initiation in *M. gypseum*, 650  
 Staphylococci  
   ecology, 967  
   human and porcine, 929  
 Staphylococcus  
   growth in fermented sausage, 891  
*Staphylococcus aureus*  
   cross-infection and spread in a hospital, 967  
   effect of water activity, 440  
   enterotoxin B, 561  
   growth on roast beef at various temperatures,  
   599  
   methicillin-resistant strains, 240  
   radiometric detection, 535  
   subsurface colonies, 786  
*Staphylococcus epidermidis*  
   characteristics of human and porcine origin, 929  
*Staphylococcus* sp.  
   nitrite burn, 405  
 Sterilization  
   by low-temperature irradiation, 453  
 Stomaching  
   bacteriological sample preparation, 175  
 Streptococci  
   FA staining, 160  
   growth in a polluted stream, 349  
   identification, 160  
   lactic, associative growth studies in three-strain  
   mixtures, 953  
   lactic, differential enumeration, 947  
   R antigens in groups A, B, and C, 669  
*Streptococcus cremoris*  
   agar medium for differentiation, 947  
   associative growth in three-strain mixtures, 953  
*Streptococcus diacetilactis*  
   agar medium for differentiation, 947  
   associative growth in three-strain mixtures, 953  
*Streptococcus faecalis*  
   in insects, 575  
*Streptococcus faecium*  
   in insects, 575  
*Streptococcus faecium* var. *caseliflavus*  
   in insects, 575  
*Streptococcus lactis*  
   agar medium for differentiation, 947  
   associative growth in three-strain mixtures, 953  
*Streptococcus mutans*  
   bacteriocin production, 294  
   polysaccharide formation in, 184  
*Streptococcus pyogenes*  
   hyaluronic acid capsule formation, 907  
*Streptococcus* sp.  
   introduction to plants by insects, 575  
*Streptomyces griseus*  
   chromogenesis *mirabilis*, 768  
*Streptomyces thermidiastatecus*, 150  
 Stuart medium  
   survival of dental plaque flora, 638  
 Subsurface colonies  
   *S. aureus*, 786  
 Sussex/69 epizootic  
   isolation of causative agent, 62  
 Syntrophic pigment  
   produced by *S. marcescens* color mutant pairs,  
   591  
 Syphilis  
   MHA-TP test, 26  
 Tallow-alkyl-sulfate  
   bacterial degradation, 555  
 Tellurium  
   methylation of, 424  
 Testosterone  
   steroidal conversion, 665  
 Tetanus toxoid  
   potency, 120  
   unitage, 120  
 Tetracycline  
   fungal growth inhibition, 205  
 Tetrazolium agar overlay  
   *M. pneumoniae* identification, 148  
 Thayer-Martin medium  
   gram-negative rod isolation on, 772  
 Thermal injury  
   *B. subtilis*, 878  
*Thermomonospora curvata*  
   cellulolytic activity, 77, 83  
*Thermomonospora fusca*  
   cellulase, 150  
 Thermonuclease  
   staphylococcal, quantitative assay for, 920  
 Thymine  
   -less strains of *B. megaterium*, 717  
 Tissue culture technique  
   modified plastic microplate, 999  
 Toxicosis  
   in dairy cattle, 684  
 Toxin  
   tremorgenic, 248  
 T-2 Toxin  
   identification in moldy corn, 684

- Treponema pallidum*  
microhemagglutination assays for antibodies, 26  
*Treponema pallidum* immobilization test  
syphilis, 26  
Trypsin  
activation of *C. botulinum* toxins, 108  
Tuberculosis  
latex agglutination test, 525  
quantitation of bioenergetics, 924  
Tumor viruses  
purified RNA, 488  
Tween 80  
*L. bulgaricus* susceptibility to freezing, 551  
Tyrosine decarboxylase  
identification of group D enterococci, 1  
Typing methods  
*P. aeruginosa*, 213, 219  
Ultrafiltration  
concentration of poliovirus, 13  
rabies virus vaccines, 37  
Ultrasonic waves  
heat resistance of *Bacillus* spores, 497  
<sup>14</sup>C-Uracil  
uptake and assimilation, 977  
Urease  
*Enterobacteriaceae* identification, 618  
Veneral Disease Research Laboratory test  
syphilis, 26  
Venezuelan equine encephalomyelitis virus  
chromatography of strains, 91  
vaccine, early protection in hamsters, 604  
Versimide  
*A. versicolor*-produced, 660  
Vesicular stomatitis virus  
respiratory volume of exposed mice, 812  
Vi antigen  
isolation and measurement, 628  
*Vibrio parahaemolyticus*  
gastroenteritis, 444  
glycerin inhibitory effect, 675  
Vitamin A  
adjuvant with *A. hinshawii* bacterin, 849  
Vitamins  
microbial assays, 287  
VMG II medium  
survival of dental plaque flora, 638  
Volatiles  
identification of *A. flavus*-produced, 721  
Water activity  
enterotoxin A production, 440  
*S. aureus* growth, 440  
Western equine encephalomyelitis virus  
VEE vaccine, 604  
X-ray fluorescence  
elemental analysis of Casamino Acids, 290  
Yeasts  
cultivation in sauerkraut waste, 1007  
pH of recovery medium, 226  
*Yersinia pestis*  
procedures for antibody detection, 202  
Zinc acetate precipitation  
rabies virus vaccine, 37  
*Zoogloea*  
staining of extracellular polymer, 477

